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SURGICAL THERAPEUTICS:

A COMPENDIUM OF

CURRENT FORMULÆ, APPROVED DRESSINGS AND SPECIFIC METHODS

FOR THE TREATMENT OF

SURGICAL DISEASES AND INJURIES.

By GEORGE H. NAPHEYS, A. M., M. D., Etc.

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PREFACE TO THE SEVENTH EDITION

The preface to the fifth edition (which has been retained in the present one) sufficiently explains the plan of the present work. Its value as a hand-book of Therapeutics is abundantly proven by the constant demand for it among intelligent physicians and the commendations of the American and English press.

In presenting it again to the public, all parts have undergone a careful reading; the latest monographs and treatises have been consulted; various important pharmaceutical novelties have been introduced, as promising to be of value; and by adopting a small and compact type for the Résumés of Remedies, a considerable amount of new material has been introduced without increasing either the bulk or the price of the work.

As heretofore, the effort has been constantly made to exercise discretion in selecting from authorities so as to represent only such plans of treatment as are supported by a fair amount of clinical testimony.

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EDITOR'S PREFACE

(TO THE FIFTH EDITION.)

In presenting this volume to the public, the editor believes that he can justly claim for it that it fills a place in medical literature now entirely unoccupied.

Its chief purpose is to set forth the *medical* aspects of Surgery. While there are abundant treatises on Operative, Mechanical and Minor Surgery, there is none which aims to collect in one book the *Therapeutics* of Surgery in the stricter sense of the word, to gather the formulæ of the most distinguished surgeons, to systematize their therapeutical directions, and to set forth their specific treatment of surgical diseases and injuries.

This was the aim of the talented author of the present work, who, however, was called from his labors before he had completed them. The undertaking has been carried out in the spirit, and to a great extent upon the plan, which he had projected. In this the editor has received aid from several professional gentlemen more intimately conversant than himself with surgical specialties; to them he returns his earnest thanks. Through their assistance he can confidently promise that the work represents the most recent practice and most modern teachings of the leaders of surgery of the present day of all countries.

The book is not altogether a compilation from printed sources. It has, indeed, been the object of the editor to collate from monographs, articles in journals and systematic treatises the published matter pertaining to the subject; but he has also obtained, in various instances, from private sources and unpublished material the practice of a number of eminent teachers and practitioners; the Résumés are the result of a careful collation of many authorities; and the labor of selection

from the mass of material at hand has not been a light one. These features give the book a claim to being considerably more than a compilation, and will be found to enhance greatly its value as a practical hand-book of Surgical Therapeutics, designed to be of daily assistance to him whose business is to treat disease and repair injuries in the human body.

The work grew out of the author's "Modern Therapeutics," and is an amplification of the Surgical portion of that work. It is, therefore, in some sense, a companion volume to Napheys' "Modern Medical Therapeutics."

To forestall certain criticisms which may be made, it should be stated that it was no part of the author's plan to reconcile conflicting instructions as to treatment coming from sources of equal weight. It was deemed more consonant with the purpose of this volume to state fully and fairly such contradictory instructions, in order to prevent the reader attaching too much weight to one or another authority. Thus he will be taught a salutary distrust of mere authority, a greater independence of action, and a higher regard for the value of his own experience. All the received text-books of surgery are written by men earnestly advocating their own particular views. This is well, but it is equally well that there should also be a book in which these varying views are set forth without the effort to exalt one or depreciate another.

It may be added that while the object of this work is largely to give the exact prescriptions and minute directions of surgeons, it is not supposed that any reader will slavishly follow these, but only that they will serve as faithful portraitures of therapeutical practice, to be modified or adapted to the exigencies of individual cases.

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MODERN
SURGICAL THERAPEUTICS.

I. THE THERAPEUTICS OF INFLAMMATION.

THE PREVENTIVE TREATMENT OF INFLAMMATION.—*The Removal of Irritation—The Importance of Rest—Limiting the Supply of Blood to the Part—Cold Applications—Warm Immersion—The Use of Veratrum Viride.*

THE IMMEDIATE TREATMENT OF INFLAMMATION.—*Constitutional and Local Treatment—The Asthenic and Irritative Types of Acute Inflammation; Chronic Inflammation—General Medical Treatment.*

RÉSUMÉ OF REMEDIES.—*Internal Remedies—Cold—Electricity—Friction—Heat—Lotions—Poultices—Venesection—Diet in Inflammation.*

THE PREVENTIVE TREATMENT OF INFLAMMATION.

THE REMOVAL OF IRRITATION.

"The first duty of a surgeon in impending inflammation," says the late Prof. N. R. SMITH, M. D., of Baltimore, in one of his lectures, "is to remove all sources of irritation." (*The Baltimore Medical Journal and Bulletin*, Jan., 1871.) These may be mechanical irritants, as some foreign body whose presence may be unsuspected by the patient, especially in the case of children. Leaden bullets and polished needles cause the least irritation of any classes of foreign bodies. Prof. SMITH, in his fifty years' experience, never saw a case of tetanus caused by a needle. Other sources of irritation may be pressure, as in bed-sores, friction, as of broken bones, malformation, etc.

The irritant removed, the next duty of the surgeon is to place the

part in a state of complete repose. If the eye be hurt, let it be closed, and the light excluded. If a joint, a bone or a muscle has been irritated, let it rest in an easy posture.

The local effects of narcotic applications are often exceedingly grateful. The tincture, or, better still, the aqueous solution of *opium*, will often strikingly soothe the irritated nerves of a part. In injuries of the eye a solution of *atropia*, gr. v to water f. ʒj, applied with a wet rag, will subdue promptly intense neuralgia and other forms of pain. Bruised *stramonium* leaves are also a useful application.

THE IMPORTANCE OF REST.

Every surgeon should bear in mind the importance of *rest*—not merely local, but the quiet repose of the system generally—as a preventive measure against inflammation. To insure this, Mr. G. W. CALLENDER, of London, recommends the free administration of *opium*. He does not wait until the patient is restless and fails to sleep, but by a full dose he anticipates such a condition and prevents its occurrence; he does not postpone the anodyne until evening, but exhibits it as soon as the dressing of a wound is completed. After an anæsthetic, he recommends the prompt administration of morphia by subcutaneous injection, so as to avoid any disturbance of the stomach. Even where the patient avers that he cannot take opium, it is generally found that he progresses well under the influence of this sedative, especially if he does not know that he is taking it. Locally, all the arrangements for the dressing of a wound, for its position and protection, must be made with the object of strictly maintaining rest; the daily changes of dressing can and ought to be so arranged that they will not occasion the slightest disturbance of the parts.

Especially is general rest essential when the lower extremity is the seat of disease; when the body has experienced a severe concussion; or when the brain, lungs, intestines or kidneys are threatened with severe inflammation. In such cases, remarks Dr. D. HAYES AGNEW, "the value of absolute repose is incalculable, both as a prophylactic and a cure."

LIMITING THE SUPPLY OF BLOOD TO THE PART.

Although the abstraction of blood from an inflamed part is one of the oldest operations in surgery, the idea of forestalling excessive inflammation by mechanically limiting the access of blood is of recent date.

Dr. TITO VANZETTI, of Padua, has practiced with success *compression* of the main artery leading to the inflamed part, thus diminishing the amount of the blood to what is necessary for or compatible with the separative process. This measure often avoids exhaustive suppuration and gangrene, as well as promptly relieves pain. It has been adopted with much success by Mr. SAMPSON GAMGEE, of London.

As early as 1813, Dr. H. U. ONDERDONCK, of New York, and latterly Mr. C. F. MAUNDER, of London, have practiced *ligation* of the main artery of an extremity after severe injury, and with the happiest results. The latter states his conclusions as follows:

That ligature of the superficial femoral artery has arrested acute inflammation consequent on wound of the knee-joint.

That ligature of a main artery will quickly diminish profuse suppuration, and prevent death by exhaustion.

That, while it arrests profuse suppuration, it will, by allowing the patient to gain strength, afford an opportunity for amputation at a future time.

That gangrene and secondary hemorrhage, as the result of ligature, should not be anticipated in the healthy subject.

That the dread of these has arisen from our knowledge of the consequences of the ligature in instances of known diseased vessels—aneurism, for example.

That the arterial tension of the rest of the body will be increased beneficially by the ligature.

COLD APPLICATIONS.

The *local preventive* treatment of inflammation, according to Mr. ERICHSEN, is best carried out after removing sources of irritation and placing the part in repose, by the free application of *cold*. If the injury be superficial, and not very severe, lint dipped in cold water, frequently removed, may be applied; or, if the skin be unbroken, an evaporating lotion may be applied. Should the injury be severe, cold irrigation will be preferable. This may be done by suspending over the part a large, wide-mouthed bottle full of cold water; one end of a skein of cotton, well wetted, is then allowed to hang in the water, while the other is brought over the side of the bottle. This, acting as a syphon, causes a continual dropping upon the part. Dry cold has the advantage of not soddening the part, and is less apt to be followed

by gangrene. It is best applied by putting ice into a thin vulcanized india-rubber bag.

WARM IMMERSION.

Professor FRANK H. HAMILTON, M. D., of New York, has of late years strongly urged as a preventive measure against traumatic inflammation the use of *warm water* instead of cold, and of *immersion* as superior to irrigation. (*Richmond and Louisville Medical Journal*, January, 1874.) He places the injured part in a water bath constantly maintained at a temperature of 90°–95° Fah., and keeps it there from one to three weeks. When from the position of the injury this is not practicable, he covers with several thicknesses of sheet lint, previously saturated with tepid water, and encloses this with oiled silk. When the bath can thus be employed, little or no inflammatory reaction takes place, and gangrene is very successfully avoided, even in exceedingly severely lacerated and contused wounds of the extremities. Dr. HAMILTON, from an extended experience, much prefers this to the cool or cold prophylaxis of inflammation.

THE USE OF VERATRUM VIRIDE.

The exhibition of *veratrum viride* has been advocated by Dr. C. WOOD, Jr., as of great value in preventing inflammation after severe abnormal injuries, indeed, after any severe injury. The patient should be placed at rest, and restricted to a low diet, while the tincture of veratrum should be administered very carefully, so as to keep the pulse as depressed as possible, but at the same time to avoid vomiting. To secure this latter, opium should be combined with the veratrum.

A similar use of the drug has been urged by others. Dr. D. W. JONES, of New York, correctly points out that "the peculiarly beneficial effects of veratrum are experienced at that point where, in the initial stages of inflammation, congestion in the part has taken place, but the period of effusion has not yet been reached." (*Medical and Surgical Reporter*, April, 1872.) When there is present an inflammatory condition of the stomach and bowels, it must be used with great caution or not at all.

THE IMMEDIATE TREATMENT OF INFLAMMATION.

PROF. S. D. GROSS, M. D., PHILADELPHIA.

This author divides the treatment of inflammation into two heads, the constitutional and local treatment.

Constitutional Treatment.—At the head of the list of constitutional remedies for inflammation he places *general bleeding.* He believes that this is not often enough resorted to at the present day. The blood should be taken from a large orifice in a large vein, the fluid running to the amount of at least f. ℥ iij a minute, the patient either sitting or standing. The operation is called for where there is a hard, strong, full and frequent pulse, a plethoric state of the system, and great intensity of morbid action. An average amount to take is sixteen to twenty ounces. If syncope supervenes, it should be relieved gradually by loosing the clothes, fanning, or sprinkling with cold water; if it assumes an alarming character, ammonia to the nostrils, sinapisms over the heart and to the extremities, and a stimulating enema, may be called for. As calling for caution in the use of this measure, or for its prohibition, are the circumstances of extreme youth or age, corpulence, the nervous temperament, in exhausted states of the system, in exanthematous diseases, and after grave accidents.

The use of *cathartics* is particularly valuable in inflammation of the brain and its membranes, the eye and ear, throat, respiratory organs, liver, skin and joints. They are generally contra-indicated in gastritis, enteritis, peritonitis, cystitis, wounds of the intestine, and strangulated hernia. In external inflammations, as well as in inflammations of the supra-diaphragmatic organs generally, one of the most useful cathartics is an infusion of senna, or of senna and Epsom salts, combined with a carminative.

1. ℞. Infusi sennæ, f. ℥ ij.
Magnesiæ sulphatis, ℥ ij. M.
For one dose.

Enemata are often more prompt and efficient than cathartics by the mouth. An excellent one is

2. ℞. Soapsuds, one quart.
Vinegar, two ounces.

Whatever material may be used, the important rule is to mix it with a sufficient quantity of fluid, warm or cold, to distend the lower bowel. The patient should be placed upon his side or belly during the introduction of the nozzle of the syringe.

The value of *mercurials* in inflammation, both during its height to arrest its progress, and later to promote absorption, is very great. It is particularly conspicuous in phlegmasias of the fibrous and fibro-serous tissues, synovitis, carditis, arteritis, hepatitis, splenitis, osteitis, laryngitis, orchitis, iritis and syphilis. There is, however, a point in inflammatory affections prior to which mercury should not be given. This point is characterized by softness of the pulse, a relaxed condition of the skin, moistening of the skin, and a general tendency to restoration of the secretions. As a sorbefacient in chronic cases, it should be administered in a gentle and persistent manner, the gums being merely touched. For this purpose the bichloride may be given, or blue mass in small doses. Where a prompt and powerful impression is desired, the best article is calomel, in doses of gr. iij–v, every three, six or eight hours, until we have attained the object of its exhibition. Gray powder, a favorite with many, is unworthy of reliance. To prevent the mercurial passing off by the bowels, it may be combined with opium, gr. ½–j; and when the skin is hot or dry it may be added to tartar emetic, ipecacuanha, or Dover's powders. As counter-indications of mercurials may be mentioned age, anæmia, and the strumous habit of body.

The use of *emetics* in inflammation is at the present day limited almost exclusively to cases in which there is marked gastric and bilious derangement, as is noted by nausea and vomiting, headache, lassitude and pain in the back and limbs. They must be carefully avoided in inflammations of the sub-diaphragmatic organs, in cephalic and cardiac diseases, in herniæ, fractures and dislocations.

In acute inflammations, especially of the respiratory organs, joints, and fibrous structures in young and robust subjects, *depressants* are entitled to a high position. The most trustworthy are tartar emetic and ipecacuanha. *Tartar emetic* may be administered gr. ⅛–¼ every two, three or four hours. If it produces vomiting, a small quantity of the salts of morphia should be added to it. In children, this should be an invariable rule. The dose of *ipecacuanha* as a depressant varies from gr. ¼ to gr. iss. It is peculiarly adapted to the inflammatory affections of children. Whichever article is employed, it is well to

withhold all drinks from fifteen minutes to half an hour after the dose is taken, in order to avoid vomiting. At the end of this time diluents may be used with benefit. *Aconite* is particularly adapted to neuralgic, gouty and rheumatic affections, and to the higher grades of traumatic fever. From gtt. j–v of Fleming's saturated alcoholic tincture of the root, repeated every two, three or four hours, is the usual form. *Veratrum viride* is applicable to the same class of cases. From gtt. v–viij of the saturated tincture of the root, every two, three or four hours, is the usual dose. Great care is demanded in its use, as it easily causes dangerous symptoms. *Digitalis*, as a depressant sedative, is not of much or any value.

An important class of remedies in inflammation are *diaphoretics*. Though many are known, but few are reliable. These are tartar emetic, ipecacuanha, Dover's powder, and spirit of mindererus. The best form to administer antimony is in a combination like the following:

3. ℞. Antimon. et potassii tart., gr. $\frac{1}{16}$–$\frac{1}{8}$.
Morphiæ sulphatis, gr. $\frac{1}{8}$–$\frac{1}{4}$.
Aquæ, f.℥ ss. M.
This amount every two, three, or four hours.

Dover's powder is an excellent form for ipecacuanha, grs. xv–xx, every eight, ten or twelve hours. The action of these remedies should always be aided by tepid drinks, and if there be much dryness of the surface, by frequent sponging of the body with tepid water. When there is nausea, dry skin, excessive thirst and great restlessness, the very best diaphoretic is lemon juice, in tablespoonful doses, saturated with bicarbonate of potassa, the salt being added slowly and gradually till all effervescence ceases. A twelfth of a grain of tartar emetic, or a few drops of tincture of aconite, may be added as an arterial sedative.

Of the various *diuretics* employed in inflammation, the most important are *nitrate of potassa* and *colchicum*. The former may be employed in doses of gr. xv–xxx every three, four, five or six hours in a large quantity of water. Colchicum may be employed as follows:

4. ℞. Tinct colchici seminum, f.℥j.
Morphiæ sulphatis, gr. $\frac{1}{2}$–j. M.
This amount once daily, at bed-time.

This is far superior to three or four smaller doses, which only irritate the kidneys and bowels.

Anodynes are particularly beneficial in inflammation attended with violent pain. In giving them, depletory measures and catharsis should precede them, if there is plethora or fecal distension. Full doses are required and they should preferably be given at bed-time. The best anodyne is *opium* and its derivatives. *Bromide of potassium* is valuable in all low forms of inflammation attended with loss of sleep, nervous excitement, and gastric irritability. Full doses, gr. xx–xxx every two hours or oftener, are called for. *Hydrate of chloral* is a speedy, trustworthy soporific. The full dose is gr. xxx, repeated every few hours.

There are few cases of acute inflammation in which, sooner or later, *tonics* do not prove indispensable. Of them all, by far the most valuable are quinine, and the tincture of the chloride of iron with brandy, whisky or wine. Alcohol in some form is the most trustworthy tonic and stimulant. The choice of the form may be left to the patient.

In most cases a combination of the remedies above described may be advantageously used. For this purpose Dr. GROSS recommends the following:

ANTIMONIAL AND SALINE MIXTURE.

5. ℞.	Antimonii et potassii tart.,	gr. ijss.	
	Magnesiæ sulphatis,	℥ ij	
	Morphiæ sulphatis,	gr. ij.	
	Aquæ destillatæ,	f. ℥ x.	
	Syr zingiberis vel simplicis,	f. ℥ ij.	
	Acid. sulph. aromat.,	f. ℥ ss.	
	Tinct. verat. viridis,	f. ℥ iss.	M.

Of this combination the proper average dose is half an ounce, repeated every two, three, four or six hours. Should it produce emesis or severe nausea, the dose must be diminished. Colchicum may be added when there is a rheumatic or gouty state of the system, quinine when there is a tendency to periodicity, and copaiba when there is renal or cystic trouble. The quantity of morphia may be increased when there is much pain.

Local Treatment.—The local remedies of inflammation consist of rest and elevation of the affected part; the local abstraction of blood by scarification, puncture, leeching or cupping; compression, by the bandage or adhesive plaster; destructives, as the use of the cautery to poisoned wounds; counter-irritants, especially blisters; and the local application of antiphlogistics.

Of the last mentioned, *water*, cold or warm, simple or medicated, is of immemorial use. Dr. GROSS generally prefers warm water to cold; a good rule, however, is to consult the feelings of the patient, and employ that which is more agreeable to him. The water may be rendered anodyne, astringent or antiseptic, by the addition of opium, acetate of lead or some of the chlorides. When ice cannot be obtained, it may be rendered cold by the addition of one-sixth its bulk of alcohol, or by hydrochlorate of ammonia and nitrate of potassa. In employing cold water, the part is exposed, to favor evaporation; in the use of warm, it is covered, to maintain the heat.

Fomentations are often very beneficial in inflammations of the joints and internal viscera, as cystitis, gastritis and enteritis. The most simple consists of a large and thick flannel cloth, well wrung out of hot water, and applied lightly to the part as hot as it can be borne. Two such cloths should be used, so that when one is taken off the other may immediately be applied.

Stuping is conducted with a piece of flannel rolled into a ball, which the patient holds in a small pitcher, at such a distance from the affected part that the vapor may ascend to it, the cloth being wet as often as it becomes cool. It is particularly serviceable in affections of the eye, nose, mouth and throat.

Poultices should be changed three or four times a day. They should be light, of medium consistence, and applied at about the temperature of the body. Even when quite mild they sometimes act as irritants.

Water and poultices are generally much increased in efficacy by adding hydrochlorate of ammonia, acetate of lead, or solution of the subacetate of lead. The first mentioned is especially called for where there is extensive effusion of fibrin, or fibrin and blood. Vinegar adds to its efficacy.

6. ℞.	Hydrochlorate of ammonia,	one ounce.	
	Vinegar,	one ounce.	
	Water,	half gallon.	M.

Goulard's extract (solution of the subacetate of lead) is valuable for its astringent and sedative properties.

7. ℞.	Liq. plumbi subacetatis,	f.℥ij.	
	Aquæ,	Oj.	M.

When pain is present, laudanum or morphia may be added to this;

but these articles must be cautiously applied to open wounds or sores. The best medium for applying these solutions is a double layer of old, soft flannel, kept constantly wet by pressing the fluid upon it with a sponge.

In very many inflammations of the cutaneous and mucous surfaces, *nitrate of silver* is an indispensable agent in treatment. It may be used as a vesicant or as an alterant; but much judgment is required in its employment, as it is capable of immense harm. The *tincture of iodine* is also exceedingly valuable as an antiphlogistic. For external use, it should be diluted with an equal quantity of alcohol, the mixture being brushed on with a camel-hair pencil until the skin is of a deep yellowish color. This may be repeated every eight, twelve or twenty-four hours, according to the exigencies of the case. When for the tonsils, uvula or other delicate parts, the dilution should be still greater.

MR. JOHN ERIC ERICHSEN, OF LONDON.

The Treatment of the Asthenic and Irritative Types of Acute Inflammation.—This surgeon draws forcible attention to the importance of distinguishing between the *sthenic* and *asthenic* types of surgical inflammation. The more he has seen of this form of disease, the more convinced has he become that the stimulating plan of treatment is the only method of carrying patients through those low forms of visceral inflammation that are so frequent in hospital practice. If the tongue, the pulse, and the general character of the symptoms partake of the asthenic or irritative type, we cannot at any period have recourse to the depletory and depressant treatment recommended in sthenic inflammation; even if the inflammatory fever assumes this latter form, and yet the broken constitution, the advanced years, the exhausted constitution, or the cachexia of the patient, or the congestive and passive character of the local inflammation, gives reason to believe that the constitutional symptoms will not long continue of this type, we should proceed with great caution. Bleeding should be avoided, the bowels should be cleared out, the patient kept quiet, on a moderately low diet, and diaphoretic salines administered.

As the symptoms merge into the typhoid type, the pulse growing quicker and weaker, the tongue dry and dark, some stimulant in combination with the salines is demanded. The carbonate of ammonia, in doses gr. v–xv, may be given with bark, or in an effervescent form with gr. xv of bicarbonate of potash and a sufficient quantity of citric

acid every third or fourth hour. The nourishment must be increased, and wine or alcoholic stimulants must be conjoined with it. Overstimulation must be avoided, which may be done by observing the influence on the pulse and tongue of the treatment adopted.

When from the first asthenic symptoms show themselves, tonics and stimulants should be freely administered, with bland and easily assimilable food, as beef tea, eggs and farinaceous food. Ammonia and bark, wine, brandy and porter, with meat extract and arrow-root are often imperatively demanded in large quantities to save the patient's life. The brandy and egg mixture, if well made, combining nutriment and stimulus, is the best remedy that can be administered in many cases of low inflammation.

As the asthenic passes into the irritative form, opiates should be combined with the general treatment. When congestive pneumonia and asthenic bronchitis supervene, the following draught is advantageous:

8. ℞. Tinct. camphoræ comp., ♏ xx–xxx.
Ammoniæ carbonatis, gr. v–x.
Decocti senegæ, f.℥ iss. M.
For one dose every three or four hours.

Rubefacients, blisters or dry cups should be applied to the chest. The diarrhœa that not unfrequently occurs must be met with opiates and astringents; and if the urine cannot be passed, it must be drawn off with a catheter.

THE TREATMENT OF CHRONIC INFLAMMATION.

In treating chronic inflammations, *hygienic measures* are first in importance. Pure air, a light, digestible, nourishing diet, and cleanliness are indispensable. In the more active forms *mercury* is of great service, but should be avoided in cachectic and strumous patients. The most useful preparations are calomel, gr. $\frac{1}{8}$–$\frac{1}{2}$, or iodide of mercury in the same doses, or the bichloride, gr. $^1/_{16}$–$^1/_8$. *Iodide of potassium* is extremely valuable in chronic inflammation of the fibrous or osseous tissues, or of the glands in strumous patients. The fluid extract of the red Jamaica *sarsaparilla* is also a very valuable remedy, especially in inflammation associated with want of power. In strumous forms of chronic inflammation, *cod-liver oil* is of very great efficiency, especially in children and young people. *Purgatives* are often required in this

form of inflammation. Warm aperients, as compound decoction of aloes with Rochelle salts, answers best. For children the following:

9. ℞.	Hydrarg. cum cretâ,	℈j.	
	Pulveris rhei,	℈iv.	
	Sodii bicarbonatis,	℈ij.	M.

For one dose, gr. x–xxx.

The *local treatment* includes local bleeding, warmth and moisture, cold and counter-irritation. Friction is often of great service in this form. In the latter stages the pyogenic counter-irritants—issues, setons and the cautery—may be very advantageously employed. Astringents directly applied to the inflamed parts are of extreme utility in those forms of passive inflammation where the circulation is sluggish and the capillaries loaded. The nitrate of silver, either solid or in solution (gr. j–3 j to aquæ f. ℥ j), is commonly preferred. Pressure is also of essential service in supporting the feeble vessels in congestive inflammations.

J. MILNER FOTHERGILL, M. D., OF LONDON.

General Medical Treatment of Inflammation.—The two varieties of inflammation, sthenic and asthenic, must be broadly distinguished.

In the treatment of the sthenic or active form, the first indications are to lower the temperature and reduce the vascular excitement. To this end, either acetate of ammonia, nitrate or citrate of potash, or the purgative effects of citrate of magnesia, may be used. For the pain a full dose of opium, given at bed-time, is most efficient.

10. ℞.	Pulveris opii.	gr. ij.	
	Hydrargyri chloridi mitis,	gr. iij.	
	Pulveris Jacobi veri,	gr. v.	M.

For one dose at night.

This may be followed in the morning by a Siedlitz powder, or a glass of some purgative natural water. During the day the following may be prescribed:

11. ℞.	Vini antimon.,	♏ xx.	
	Tincturæ hyoscyami,	f. ℥ ss.	
	Liquoris ammon. acetatis,	f. ℥ j.	M.

This amount every six hours.

Or hydrate of chloral may be combined with opium and camphor.

12. ℞.	Chlorali hydratis,	gr. xv.	
	Tincturæ opii,	♏ x.	
	Misturæ camphoræ,	f. ℥ j.	M.

Once every six hours.

One or two drops of the tincture of aconite may be given in water every few hours in place of these mixtures.* The food in this shape should be bland, nutritious, and easily digestible. Such a combination is found in milk and seltzer water, in chocolate, blanc-mange, beef tea or Liebig's extract, rice water, &c. Cool water, lemonade or weak claret and water, may be freely allowed. Cold applications and poultices may be called for locally.

When by the use of the direct depressants of the circulation the acute symptoms have been abated, an interval not unfrequently elapses between the inflammatory rise and the convalescence proper. Then a line of treatment is to be instituted which is tonic, and yet calculated to control any tendency to another rise of temperature. Such measures we shall find in the union of vegetable tonics with the mineral acids. Nitric, muriatic or phosphoric acid may be combined with quinine, or with gentian, cascarilla or columbo. When a tendency to constipation is present, sulphate of magnesia is the most appropriate tonic. A good form of combination is the following:

13. ℞.	Acidi hydrochlorici diluti,	♏ x.	
	Infusi cinchonæ,	f. ℥ j.	M.

Or the following:

14. ℞.	Acidi hydrochlorici diluti,	♏ x.
	Quiniæ sulphatis,	gr. j.
	Infusi cascarillæ,	f. ℥ j.

To be given three or four times a day.

As this intermediate condition disappears, actual convalescence should be established. This, however, is frequently retarded by impaired functional activity and loss of tone. The food does not seem to benefit the patient, and there is torpor of the alimentary canal. When this is associated with a tongue coated with a yellowish fur, and with a foul taste in the mouth on awaking, a mercurial laxative is called for. If the appetite is capricious, and assimilation imperfect, a mixture like the following will be found advantageous:

15. ℞.	Tinct. ferri chloridi,	♏ v.	
	Acidi hydrochlor. diluti,	♏ x.	
	Infusi calumbæ,	f.℥ j.	M.

For one dose, three times a day, half an hour before meals.

Or citrate of iron and quinine may be given instead. The bitters act beneficially on the stomach in these conditions. If the bowels be merely inactive with a fairly clean tongue, a little pill, *aloes et myrrhæ*, at bedtime every night, or every other night, will be found sufficient to keep the patient on the right track. If, as often happens, the combination of a vegetable tonic with iron produces a disagreeable sense of feverishness and heating, the addition of a little sulphate of magnesia will generally relieve the symptoms, as:

16. ℞.	Magnesiæ sulphatis,	℈ss.	
	Quiniæ sulphatis,	gr. ½.	
	Liq. ferri persulphatis,	♏ v.	
	Infusi quassiæ,	f.℥ j.	M.

This amount three times a day.

This is an excellent and useful combination where the ordinary quinine and iron mixtures do not agree.

Great care should be taken to protect the patient from sudden changes of temperature, cold, damp, and draughts. Should the increasing appetite lead, as in children it is especially apt to, to excess in eating—to what used to be called "a surfeit"—an emetic followed by a purgative is the proper treatment.

In regard to the diet of the early stage of convalescence, alcohol in the form of the brandy-and-egg mixture is often valuable. Alcohol may also be given instead of opium at night to induce sleep. As convalescence becomes established, little allurement in the nature of the viands is required to tempt the appetite; plain food is taken with avidity, and one must guard against an excess of it.

In the second or asthenic form of inflammation, important modifications of the above treatment are required. This form occurs in systems exhausted from any cause, in the aged and in broken-down constitutions. Such cases are not to be treated by depressants. They require alcohol, ammonia, quinine, beef tea, musk, &c., in liberal quantities and at brief intervals. The utmost possible union of stimulants and tonics with nutritious food is indicated to get the organism safely through this period of peril.

17. ℞.	Ammoniæ carbonatis,		gr. v.	
	Spiritûs chloroformi,		♏ xx.	
	Infusi cinchonæ,		f.℥j.	M.

In one dose every four or six hours.

Wine, milk, beef tea or egg-and-brandy should be supplied at frequent intervals. The ethers of wine make it especially suitable for this organic condition. Needless to add that blood-letting, purgation or other such measures are wholly out of place in such a case.

In regard to the "calomel and opium" treatment of active inflammation, especially of fibrous and serous tissues, Dr. FOTHERGILL'S own experience is chiefly confined to having seen harm done by it, and he believes that it cannot be recommended except in the treatment of inflammatory conditions of syphilitic origin, or occurring in a system saturated with syphilis.

PROF. D. HAYES AGNEW, M. D.*

Some special features of this surgeon's treatment of inflammation will be mentioned.

He condemns setons, issues, moxas and the hot iron. As counter-irritants, he has witnessed striking advantages from mustard plasters in light cases; for more chronic cases, *iodine* is invaluable both as a counter-irritant and alterative. The peculiar action of the drug may be secured without any of its unpleasant effects, by using it in the following formula:

18. ℞.	Liquoris iodinii compositi,		f.℥vj.	
	Pulveris sacchari albi,			
	Pulveris acaciæ,	āā	gr. xl.	
	Aquæ destillatæ,		f.℥ij.	M.

For local applications.

Dr. AGNEW speaks strongly in favor of *mercurials*, saying: "I should regard their proscription as a public calamity." The preparations he prefers are calomel, corrosive sublimate and blue mass. Salivation is rarely, if ever, necessary. *Blood-letting* he also considers as of great curative power in frequent cases. After blood-letting, the vegetable depressants *aconite* and *veratrum* come in most happily, holding the circulation down after it has been reduced by the loss of blood; or, in cases not urgent, they may serve as substitutes for the lancet. Antimony is no favorite with him, and he rarely exhibits it.

* *The Principles and Practice of Surgery*, 1878.

RÉSUMÉ OF REMEDIES.

INTERNAL REMEDIES.

Aconitum. This is a powerful depressant and antiphlogistic. Its effects are especially beneficial in gouty and rheumatic inflammations, in high traumatic fever, in erysipelas and the inflammation which sometimes follows vaccination (RINGER.) Where the intestinal mucous membrane is inflamed, aconite is contra-indicated (BARTHOLOW.) In *gonorrhœa* and *orchitis* it is very useful, and in the reflex fever which sometimes follows the passage of a catheter or bougie (the so-called *urethral fever*), Dr. H. C. WOOD, Jr., states that the following affords an excellent combination:

19. ℞.	Tinct. aconiti radicis,	gtt. j.	
	Spiritûs ætheris nitrici,	f. ʒ ij.	
	Misturæ potassii citratis,	q. s. ad f. ʒ j.	

This much every two hours for an adult.

Ammonii acetas. In acute inflammation, Mr. FAIRLIE CLARKE recommends

℞.	Sp. ætheris nitrosi,	f. ʒ ij.
	Liq. ammon. acetat.,	f. ʒ iij.
	Aquæ camphoræ,	ad. f. ʒ jss. M.

Antimonii et potassii tartras. As an antiphlogistic, tartar emetic should be given in doses of gr. $\frac{1}{12}$–$\frac{1}{4}$. Its effects are greatly enhanced by the addition of a small quantity of morphia.

Chloralum hydratum. As this drug diminishes the coagulability of the fibrin in the blood, and acts as an anodyne, its use is indicated where the temperature is high, and restlessness or delirium present.

Belladonna is a most valuable preventive of inflammation, and after its onset will greatly relieve the pain. It may be used both internally and externally.

Digitalis, in large doses, used at the commencement of acute inflammations, is said often to cut them short. From f. ʒ ss-j of the tincture is recommended for a dose. Used as a depressant, Professor S. D. GROSS says he has lost confidence in it. In erysipelas, and acute inflammations of the joints and breast, the following fomentation is said to be valuable:

20. ℞.	Digitalis foliorum,	ʒ j.	
	Aquæ bullientis,	O j.	M.

Apply locally.

Gelsemium produces in animals a marked fall of temperature, and has been widely used in sthenic inflammation. Its precise value is not yet ascertained. Dr. E. P. HURD, of Massachusetts, has found it unequaled as a cardiac sedative. (*Boston Medical and Surgical Journal*, Dec., 1870.)

Hydrargyrum. Numerous preparations of mercury are used in inflammation. Although doubt has been thrown on its antiphlogistic properties, clinical experience seems to demonstrate them. For the rules of its use see above (pages 22, 31.)

Ipecacuanha in small doses is valuable as a depressant.

Opium, as an anodyne, is indispensable in the treatment of the pain and restlessness

of inflammation. The alkaloid *Codeia* is that preferred by Professor S. D. Gross.

Potassii Acetas is a useful saline in acute inflammation.

Potassii Bromidum is a most valuable remedy in all low forms of inflammation, attended with loss of sleep, unusual nervous excitement and irritable stomach.

Potassii Nitras has been largely given in acute inflammation, under the belief that it defibrinizes the blood, but this action is doubtful. It is, however, a diuretic and diaphoretic of value.

Veratrum Viride is an important depressant, see above (page 20.) As a *preventive* of inflammation after any severe injury, it is invaluable.

EXTERNAL APPLICATIONS.

COLD.

Cold has been employed in inflammation from the earliest times. It is applied in various ways, by cold baths, by streams of cold water, by cold moist sponges and cloths, by bladders filled with ice, and by the evaporation of ether.

Cold Application.

21. ℞.	Nitre,	℥ ss.	
	Sal ammoniac,	℥ ij.	
	Vinegar,	3 tablespoonfuls.	
	Water,	O j.	M.

This solution, applied by means of sponges or cloths to the head and elsewhere, where intense cold is desired, produces a more powerful effect than cold water or pounded ice.

Cold without Moisture. When it is desired to apply a freezing mixture to the skin, it may be readily done by applying a mixture of ice and salt in a tumbler or a lamp glass covered with a piece of bladder.

Hydropathic Belts. A hydropathic belt consists of a bandage five or six inches wide, and long enough to pass two or three times around the body. It is dipped into cold water, carefully wrung out, wound around the trunk, and covered by a wider and larger dry band. About every hour, or as often as it becomes dry, it is to be changed. A bandange may be applied in the same manner upon various parts of the body, and particularly over the joints attacked by rheumatism. An eruption of the skin is usually produced by this application, which is frequently of service.

Ice Poultice. Spread a layer of linseed meal, three-fourths of an inch thick, on a cloth of proper size, and upon this, at intervals of an inch or more, place lumps of ice the size of a marble. Sprinkle with meal, cover with another cloth, folding in the edges, and apply the *thick* side to the wound.

Manner of applying Cold Affusion. The patient, stripped naked, is to have from three to five gallons of water, at 50° F. or 60° F., in the winter, and 60° or 70° in the summer, thrown over him. Simple water, or vinegar and water, or salt and water, may be used. The safest time for the application during fever is when the exacerbation is at its height, or immediately after its declination

has begun. From six to nine o'clock in the evening is the hour usually chosen.

Cautions in the Use of Cold Affusion. 1. It should never be employed where there is any sense of chilliness, although the thermometer indicates a morbid degree of heat. 2. It should never be employed in the cold stage of fever, nor when the heat measured by the thermometer is less than, or equal to, the natural heat, (98½° F.,) even though the patient is not chilly. 3. It should never be employed when the body is in a profuse perspiration; nor in fever complicated with any visceral inflammation. The patient should always immerse his hands for a few moments in the water before it is applied to any other part of the body; this prevents the shock from being too violent. The earlier in the disease it is resorted to, the better the effects of cold affusion; but in the more advanced stages it will be found to moderate the symptoms.

ELECTRICITY.

Dr. G. E. WEISFLOG has strongly recommended the use of faradaic currents of electricity in the treatment of traumatic inflammation. He maintains that it possesses well-marked antiphlogistic powers, that it alleviates pain, and that it effects the absorption of inflammatory products, whether these are of a serous, purulent or sanguinolent nature. The affected limb is most advantageously immersed in a water-bath, the temperature of which may vary considerably, in some instances rising as high as 100° F., into which one electrode of the apparatus is immersed; the other electrode must be applied to some healthy part of the body. He speaks of having obtained successful results in various cases of phagedænic ulcers, burns, acute and chronic joint affections, and pleurisy; whilst faradaic currents will also cure iritis, keratitis, &c. (*The Lancet*, June 9th, 1877.)

FRICTION.

Rubbing, Massage or ordinary friction is very useful in chronic inflammation depending on the relaxation of the vessels of the part, or where there is effusion. The friction should be in such a direction as to excite venous circulation. Often a stimulating liniment may be advantageously rubbed in.

HEAT.

Modes of Application. *Flannel* highly heated in an oven, or before the fire, may be employed to apply dry heat; but it cools quickly. *Hot sand*, though heavy, and therefore for many purposes contra-indicated, retains its heat for a long time. It should be heated over the fire in an iron pan, and put in a warm linen bag of the proper shape for the object in view. *Chamomile flowers* are lighter than sand, but more quickly lose their warmth. They are to be heated and placed in a linen bag, in the same manner as the sand. A thin piece of *flat tile*, when it can be procured, can often be used with advantage. It is lighter than sand, and when heated in an oven and wrapped in a flannel, retains its warmth for a considerable time. A heated *brick* wrapped in flannel may sometimes be employed; so also may *bottles filled with hot water*. Dr. DA COSTA frequently recommends the use of *hot salt* in a bag, applied to the back of the neck in congestive headache, &c.

Fomentation is the application of warmth and moisture to the surface of the body by means of a flannel or soft cloth. *Steaming* consists in exposing a part to the vapors arising from a piece of flannel wrung out in boiling water; it is often employed in affections of the eyes.

An ordinary Fomentation. Immerse a piece of flannel in boiling water, remove it and put it in a wringer made by attaching stout toweling to two rollers. The wringer is twisted around the flannel very strongly, till as much as possible of the water is pressed away. The wringer is useful, as the flannel is too hot when first removed from the boiling water to be grasped by the hand. When wrung as dry as possible, fomentations prepared in this way may be applied very hot without fear of scalding or blistering the skin. The flannel when applied to a part should be covered with a piece of oiled silk or rubber cloth, and changed before it becomes cold. On the removal of the fomentation the skin should be at once gently dried and covered with a piece of dry flannel. If the precaution of covering the fomentation with oiled silk, muslin, or paper, or a rubber cloth, be neglected, the warm, comforting flannels will be converted in a few minutes into cold, clammy, wet ones, disagreeable and hurtful to the patient.

Turpentine Fomentation. Steep a piece of lint or linen in oil of turpentine, place it over the part and immediately apply over it flannel heated as hot as it can be borne. This is frequently more effectual than a mustard plaster.

Turpentine Fomentation. Sprinkle the flannel wrung out of hot water in the manner just described, with a tablespoonful of turpentine. This will act as a counter-irritant, rapidly reddening the skin and relieving pain in many cases.

Opium Fomentation. Instead of turpentine employ laudanum as directed in the preceding receipt. Used to relieve pain.

Mustard Fomentation. Add a quarter of a pound of mustard to a pint of boiling water. Wring the flannel cloths out in this solution in the manner above directed. This fomentation quickly reddens the skin, and is frequently useful in allaying pain.

LOTIONS.

These are especially called for after *sprains, bruises,* and *blows* which do not break the skin, but are followed by ecchymosis, suggillation, swelling and pain. For this purpose, those which are cooling and discutient are the most useful.

22. ℞. Acidi tannici, ʒj.
Tincturæ opii, f.ʒij.
Aquæ, f.ʒvj M.
Astringent and sedative.

23. ℞. Liquoris plumbi subacetatis, f.ʒj.
Alcoholis, f.ʒvj.
Extracti opii, gr.x.
Aquæ, f.ʒx. M.
Astringent and sedative.

24. ℞. Ammonii chloridi, ʒv.
Acidi acetici, f.ʒx.
Alcoholis, āā f.ʒx.
Aquæ, ad f.ʒx. M.
Evaporating and discutient. Highly esteemed in the London hospitals.

25. ℞. Sodii boratis, ʒj.
Alcoholis diluti, f.ʒ iss.
Aquæ destillatæ, f.ʒ iij. M.

To be applied in lotion several times a day, on bruises with excoriated skin.

26. ℞. Liquoris ammoniæ acetatis, f.ʒ ss.
Aquæ, f.ʒ iss.

Use as a refrigerant lotion.

27. ℞. Extracti conii, ʒ ij.
Liquoris plumbi subacetatis diluti, f.ʒ xij. M.

As a cooling and anodyne lotion.

The following are useful lotions:

28. ℞. Ammonii chloridi, ʒ ijss.
Camphoræ, ℈ ij.
Saponis, ʒ iss.
Alcoholis diluti, f.ʒ v. M.

Immerse a piece of flannel in this solution, and retain it upon the painful joint by means of a bandage.

29. ℞. Ammonii chloridi, ʒ ij.
Spiritûs vini rectificatæ,
Aquæ, āā f.ʒ ij. M.

An excellent cooling and discutient application in sprains, bruises, orchitis, and local external inflammations generally.

30. ℞. Arnicæ florum, ʒj.
Aquæ bullientis, Oj. M.

This preparation is preferable to the tincture of arnica as a vulnerary, as the latter is occasionally followed by eczema.

31. ℞. Tincturæ capsici, q. s.

A strong tincture of capsicum is said to act like a charm on discolored bruises, "black eyes," &c.

32. ℞. Acidi sulphurosi,
Aquæ, āā partes equales.

The marks of bruises, it is said, may be prevented or quickly removed by this lotion.

POULTICES.

When Employed. In the beginning of inflammations, to arrest them and prevent the formation of pus; also after suppuration, to facilitate the passage of the matter to the surface, and its expulsion, and limit the spread of inflammatory action.

Hints and Cautions. It is important that poultices should be applied as hot as can be borne, and frequently changed, the old poultice not being removed before the new one is at hand to replace it. In the treatment of boils, it is good practice to cover the boil with a piece of opium plaster with a circular hole

and to apply the poultice only over the plaster, or to smear the contiguous surface to the boil with zinc ointment; the object being to protect the adjacent tissues from the action of the poultice, which has a tendency to develop fresh boils. (RINGER.) The principal materials of which poultices are made are linseed-meal, oatmeal, bread, starch, charcoal, yeast, carrots and potatoes.

Linseed-meal Poultice. Rinse a bowl or basin with *boiling* water, to heat it, then pour in sufficient boiling water; with one hand sprinkle into the bowl the meal, while with the other stir the mixture constantly with a spoon or spatula, till sufficient meal has been added to make a thin and smooth dough. This should be done *rapidly*, otherwise the poultice will be almost cold when made. The *meal should always be added to the water with constant stirring*, as here directed, for if the water be poured over the meal, the two ingredients are not well blended, and a lumpy, knotty mass is the result. The dough thus made should be spread quickly and evenly over a folded piece of warm linen cut ready to receive it.

The following is the formula of the British Pharmacopœia for this poultice:

33. ℞.	Lini,	℥ iv.	
	Olei olivæ,	f. ℥ ss.	
	Aquæ bullientis,	f. ℥ x.	M.

This is a compact and only slightly porous poultice, and retains heat and moisture longer than any other kind except oatmeal. It is also more tenacious than a bread poultice, and therefore less liable to break and fall about. But the acrid matter which the linseed contains sometimes irritates a delicate skin, in which case an oatmeal or bread poultice should be substituted.

Slippery Elm Poultice. Prepared from the powdered bark of the slippery elm, moistened with hot water. It is very light and demulcent, well adapted for burns, excoriations and irritable sores.

Bread Poultice. Cut the bread in thickish slices, put it into a basin, pour some boiling water over it, and place the soaking mass by the fire for five minutes; then pour off the water, replacing it with fresh boiling water, and repeat this process; afterwards pour off the excess of water, and press the bread, beat up with a fork and make into a poultice.

Another Bread Poultice. Cut stale bread into thick slices, and pour enough boiling water over it to cover it; place the whole by the fire, and allow it to simmer for a short time, then strain off the excess of water, and prepare the poultice. The first of these is a porous poultice, the second a more compact poultice, resembling a flaxseed poultice.

Carrot Poultice. Scrape the raw carrots into a pulp, or boil them until they are soft, and then mash them to a pulp. Either can be used as a stimulant cataplasm in sluggish inflammations.

Cataplasm of Fucus Crispus. Spread out evenly a sheet of carded wadding, and pour on it a concentrated mucilaginous infusion of *Fucus crispus* (Irish moss.) Cover with another sheet of carded wadding, and beat lightly with a soft brush, to cause the jelly to be evenly absorbed. Then dry at a moderate

temperature. When used, place the sheet in a large plate and moisten with boiling water.

Starch Poultice. Add a little cold water to the starch, and blend the two into a pap; then add sufficient boiling water to make a poultice of the required consistence, which must be spread on linen in the manner already described for linseed poultice. The starch poultice is useful in skin eruptions attended with much heat and pain, and in general when a soothing application is required.

Carbolic Acid Poultice. Make a linseed poultice, but substitute the carbolic acid lotion (acidi carbo. cryst. gr. j, aquæ ♏ 50,) for one-half of the water. (*London Fever Hospital.*)

Charcoal Poultice. The charcoal may either be mixed with the ingredient of the poultice, or sprinkled over the part and covered with a simple poultice, or the following formula of the British Pharmacopœia may be employed:

34. ℞. Carbonis ligni, ℥ ss.
Panis, ℥ ij.
Lini, ℥ iss.
Aquæ, f.℥ x. M.

Used as a disinfectant to putrid wounds, &c.

Yeast Poultice. There are two ways of making a yeast poultice. In the first, the yeast and water are added to flour till ordinary dough is made, and the dough is applied while fermentation is going on. In this case, we have simply an application of rising dough. In the other way, warm yeast is spread over the surface of a simple bread poultice.

The following is the formula of the British Pharmacopœia:

35. ℞. Beer yeast, f.℥ vj.
Flour, ℥ xiv.
Water at 100°, f.℥ vi. M.

Used as a stimulant to sluggish or sloughing wounds, &c.

Potato Poultice. Dr. McCALL ANDERSON recommends in eczema, attended with much inflammation and sensation of heat, the sprinkling over a cold potato poultice of a camphorated absorbent powder, of which the formula is as follows:

36. ℞. Pulveris camphoræ, ʒ ss.
Zinci oxidi,
Pulv. talc, āā ʒ iij. M.

Even without the poultice, this is a valuable dusting powder.

Iodide of Starch Poultice. Mix two ounces of starch with six ounces of boiling water, which forms a jelly; add to it, before it cools, half an ounce of liquor iodi. Spread the poultice on lint and apply cold.

Alum Poultice. Composed of the whites of two eggs and 60 grs. of alum. Its action is astringent.

Chlorinated Soda Poultice.

37. ℞. Liquoris sodæ chlorinatæ, f.℥ ij.
Lini, ℥ iv.
Aquæ, f.℥ viij. M.

Used as an antiseptic.

Hemlock Poultice. The following is the formula of the British Pharmacopœia:

38. ℞. Conii foliæ, ℥ j.
Lini, ℥ iij.
Aquæ bullientis, f.℥ x. M.
Used as a sedative and anodyne.

Mustard Poultice. (Sinapism.) The following is the formula of the British Pharmacopœia:

39. ℞. Mustard,
Linseed meal, āā ℥ ijss.
Water, f.℥ x. M.
Used as a rubefacient and stimulant.

VENESECTION.

The following practical directions are very concisely given by Dr. DRUITT, of London:

Manner of Bleeding. General bleeding should be executed in such a way as to cause slight faintness as quickly as possible. For this purpose the blood should be drawn, as rapidly as possible, from a large orifice; and above all, the patient should sit or stand upright. For if the blood is drawn slowly, so that the vessels have time to adapt themselves to their diminished contents, or if the patient is lying down, so as to admit the flow of blood to the brain, the bleeding may be continued almost to death without the occurrence of faintness.

Quantity to be Taken. As a general rule, the blood should be permitted to flow till paleness of the lips, lividity about the eyes, sighing, nausea, fluttering pulse and relief of the pain, indicate the *approach* of faintness; but *full* faintness should always be avoided.

The class of Patients whom it is allowable to bleed, as a general rule, are the robust, with red lips, firm muscles, rustic open-air occupations, firm pulse and rigid fibre. Pregnant women usually bear bleeding well. If the lips and conjunctiva are pale, showing deficiency of blood; if the patient is bulky, soft, flabby; if there is any weakness or degeneration of the heart; or if there is any continuous disease of assimilation—scrofula, Bright's disease, or the like—bleeding can scarcely be thought of.

The class of Inflammations in which bleeding is permissible are those of sthenic inflammation of vital organs, especially the chest. It is not allowable, as a rule, in the *asthenic class* of maladies, nor in erysipelatous diseases; nor in the case of injuries requiring great constitutional efforts for their reparation, as compound fractures; nor if the disease be advanced towards suppuration or gangrene; and very seldom indeed in the case of a zymotic disease, or inflammation having a natural tendency to recover, or traumatic inflammation of parts not essential to life.

THE DIET IN INFLAMMATION.

There is still some difference of opinion in respect to the proper diet in inflammation. The view entitled to the greatest weight on this subject is expressed in the treatises on Surgery of Dr. D. HAYES AGNEW and of Dr.

JOHN ASHHURST, JR., both published at the close of 1878. Dr. ASHHURST believes that from the outset the patient should take light and easily-assimilable food in small quantities and at frequent intervals. He prefers *milk* in teacupful doses every few hours; and later, beef essence and strong broths. Weakness of the pulse, and especially delirium, is an indication for *alcohol*, whisky or brandy, ℥ iv–vj, or wine O ss, in the twenty-four hours. Dr. AGNEW is a more rigid dietician. He strongly condemns "the modern plan of stuffing patients from the very inception of the disease." He considers that cold water, barley water, or water diluted with milk, supplies all that is needful at first. When the febrile disturbance subsides, then beef tea, animal broths, milk, eggs, &c., may be given.

II. ANÆSTHETICS

GENERAL ANÆSTHETICS.—*Alcohol—Bonwill's Method--Carbon Tetrachloride—Chloral—Chloroform—Ether—Ethidene Dichloride—Ethylic Bromide—Methylene Bichloride—Nitrous Oxide—Anœsthetic Combinations.*

LOCAL ANÆSTHETICS.—*Alcohol—Carbolic Acid—Carbon Bisulphide—Carbonic Acid Gas—Chloral Hydrate—Ether—The Esmarch Bandage—Ice—Iodoform—Menthol—Morphia—Potassium Bromide—Rhigolene—Saponin—Anœsthesia of the Larynx.*

GENERAL ANÆSTHETICS.

ALCOHOL.

The vapor of heated alcohol was used to induce anæsthesia in surgical operations before the discovery of ether or chloroform. The insensibility of the drunkard also suggested its internal use for the same purpose.

Of recent years it has been extensively employed by Prof. JOHN LYNK, M. D., of Cincinnati. He depends upon it almost entirely in his surgical operations, believing that it leaves the functions, especially those of the heart, in a more normal condition than chloroform. He advises the patient to drink freely of whisky, in the case of a robust male to the amount of about a pint. Very little chloroform is then needed, or, in minor operations, none at all. (*Cincinnati Lancet and Observer*, May, 1876.)

Although it is probable that this method will not receive the general sanction of surgeons, the value of a small amount of alcohol taken shortly before the inhalation of chloroform or ether cannot be denied, and should generally be remembered and acted on.

BONWILL'S METHOD.

This method is named after its discoverer, W. G. A. BONWILL, D. D. S., of Philadelphia. The anæthesia is produced by rapid breathing of ordinary atmospheric air.

To produce the proper effect, the patient must open the mouth, breathe freely, quickly, and deeply, and after a few seconds or minutes, of such steady, continuous breathing, the symptoms of partial anæsthesia supervene, as is evidenced by the absence of feeling on pinching or pricking with a pin. At this stage any operation should be made. The anæsthetic effect passes almost immediately away, and the patient feels no pain in the operation if done dexterously and without hesitation.

This method is said by some to be one of the simplest, and at the same time one of the most beneficial plans in small operations about the eye and the like, that has been presented to the profession; its application being very easy, requiring no recumbent position on the part of the patient, calling for no apparatus for its administration, and being perfectly free from any of the disagreeable effects of ether and chloroform.

On the other hand, Dr. HENRY GIBBONS, Jr., of San Francisco, (*Pacific Med. and Surg. Jour.*, Oct., 1880,) condemns it as dangerous and tending to asphyxia.

CARBON TETRA–CHLORIDE.

This substance has been employed as an anæsthetic by various European surgeons.

Dr. PROTHEROE SMITH (*Lancet*, 1867,) found it useful in removing neuralgic pain; in mitigating the sufferings of labor, without hindering the parturient efforts; and in inducing sleep in nervous exhaustion. He claims that it rarely produces nausea or sickness, is pleasanter to inhale than chloroform, and produces anæsthesia with a less amount of muscular spasm and rigidity.

Mr. ARTHUR ERNEST SANSOM says that as far as its earlier stages are concerned, it is all we want; it is stimulant, anodyne, hypnotic; and it produces no adverse sign. But for the anæsthesia necessary for the performance of surgical operations, as well as for any prolonged employment, it is altogether undesirable. The accidents of its physical condition, its ponderous vapor, its insufficient volatility for the system readily to disembarrass itself of it, are so many reasons for its non-employment in anything like large doses.

CHLORAL.

Professor ORÉ, of Bordeaux, has introduced the intravenous injection of chloral as a means of producing general anæsthesia, and it has found some warm defenders in Belgium and Germany.

The formula which Oré recommends is the following:

40. ℞.	Hydrate of chloral,	10 grammes.
	Distilled water,	30 grammes.

The apparatus required consists of a glass syringe, graduated down to centigrammes, and containing half the quantity above stated; and a very fine "three-quarter" gold trocar and canula. A band is placed round the arm, above the point selected for operation, and when the vein has become sufficiently prominent, it is pierced through the skin. The operator knows he is in the vein by withdrawing the trocar, when blood flows through the canula. The band is then removed, and the syringe is applied to the canula; but before doing this the blood should be seen escaping from it by a jet. The operation is to be conducted slowly. At first only 50 centigrammes are to be injected. If the patient bears this, we may go on to one gramme, and so on, pausing at each division to watch for symptoms. When the subject begins to complain of an inclination to sleep, we are to go slowly, as anæsthesia is not far off. The canula is withdrawn when insensibility is complete. Eight or ten grammes are usually necessary for an adult, but six or seven grammes are capable of producing the effects required. The duration of the operation ought not to exceed ten minutes. The injection should have the surrounding temperature. It is an indispensable precaution, however, to have an electrical apparatus at hand, in order to rouse the patient from his insensibility by passing a current along the course of the pneumogastric, should that be deemed necessary.

The advocates of this method claim for it the following advantages: 1. Absence of any preliminary stage of excitement. 2. Absence of nausea and vomiting. 3. Accurate graduation of the dose administered. 4. Absolute character of the anæsthesia and muscular relaxation produced. 5. Prolonged blunting of the patient's sensibility, which protects him from the influence of shock.

Among the *hypothetical* disadvantages of the system may be enumerated risk of thrombosis and embolism, difficulty of producing insensibility, danger of prolonged stupor, inflammation of the wounded

vein. The *observed* disadvantages are transient dyspnœa, occasional irregularity of the heart's action, presence of a small quantity of blood and albumen in the first urine passed after the injection, and risk of fatal syncope.

According to M. BOUCHUT, children can be placed in a condition of absolute anæsthesia by means of chloral given by the mouth in doses of gr. xl–lx, without gastric disturbance. In this condition minor operations can be performed, and the child will awake in three or four hours, with no knowledge of the pain.

CHLOROFORM.

This is the most potent of all anæsthetics, and its use is still advocated by many eminent surgeons. Only the alleged dangers attending it prevent its exclusive employment. Many of these arise from its ignorant or heedless administration. The following rules should be observed:

Preliminaries.—Unless very feeble, the patient should fast for three hours before the inhalation. Twenty minutes before the inhalation a dose of brandy should be given in water—teaspoonful to a child, one or two teaspoonfuls to an adult. The patient should, whenever convenient, be wholly undressed, and, invariably, everything tight about the chest or neck should be removed. If possible, let the patient be in the recumbent position, and on his back. Let the chest and neck be well exposed. Whatever form of apparatus be used, (a piece of lint, a handkerchief or an inhaler,) there is little or no risk with the first inhalations, and the patient may be instructed to draw full breaths. So soon as any effort is manifest, more caution must be observed. The respiratory movements should be carefully watched, and also the color of the cheeks, lips and eyes. When convenient, the finger may be kept on the wrist-pulse; but this is not essential. If the patient struggle much, proceed with increased caution. (WARING.) The chloroform should not be allowed to touch the lips, or it may blister them. By not chloroforming a patient within two hours of a full meal, the annoyance of vomiting may be prevented. He should be narcotized before removal to the operating table or the sight of any preparations. He should be taken to bed again in a state of unconsciousness. *There should be no hurry*, because complete insensibility to pain and absence of involuntary movement are more safely obtained after the vapor has had time to benumb all the peripheral

nerves. Dr. SNOW states that insensibility to pain cannot be obtained in a very rapid manner without a dangerous degree of narcotism of the nervous centres. The inhalation should occupy eight minutes altogether. The loud talking or violence of the intoxication stage is no cause of alarm; it shows that the vapor has not produced a dangerous effect, and that a slight increase is necessary. At every operation, the management of the chloroform should be committed to one competent person, whose duty it should be to attend to it, and to nothing else. The chloroform should be pure—that is, free from oily matter, muriatic acid and uncombined chlorine.

It may be administered in vapor, either by means of a folded handkerchief applied over the face and nose, or by means of inhalers, which are sold for this purpose; and care should be taken that the patient breathes pure atmospheric air at the same time with the chloroform vapor. There is reason to believe that cardiac syncope of a fatal character has been produced by inhaling air very strongly charged with chloroform. It is, therefore, important to administer it gradually, and if a handkerchief is used, to hold it at least an inch from the mouth, and not to put more than fifteen or twenty minims upon it at one time.

It has also been stated, on excellent authority, that air heavily charged with carbolic acid, as is so often the case in operations performed under the carbolic spray, decidedly increases the dangers of chloroform.

The tendency to *emesis*, which is a fertile source of danger to the patient, and an annoyance to the surgeon, can almost certainly be prevented by forbidding any food for four hours before the inhalation, and by administering a few minutes before it a few teaspoonfuls of brandy.

The following special conditions should be considered:

Age.—Children and aged persons bear chloroform well. Mr. JONATHAN HUTCHINSON teaches that the anæsthesia of chloroform is safer than that of ether in advanced life, as it is attended with less cerebral excitement. In giving it to infants, but a few drops should be administered at a time.

Sex.—Hysterical females are peculiarly susceptible to the action of chloroform.

Heart Disease.—Most surgeons believe that fatty degeneration, marked cardiac debility, and the presence of large aneurisms, contra-

indicate the use of chloroform. This is denied by Prof. GROSS, who has never witnessed evil effects from these causes. Prof. OCCHINI, of Italy, recommends that such patients should inhale *ammonia* for five or ten minutes before commencing the chloroform. But a recent and able authority, Prof. GEORGE H. B. MACLEOD, F. R. S. E., of the University of Glasgow, maintains that any such precaution is wholly needless. His words are:

"We recognize almost no disease as rendering a patient an unfit subject for chloroform; and to examine him beforehand would only augment his anxiety, and possibly discover conditions which the administrator would better be in ignorance of, as it might render him less decided in his actions, and so the patient might not be as completely under the influence of the anæsthetic as was requisite for his safety. No examination should be capable of augmenting the care and caution always to be employed. Heart-disease, instead of being a counter-indication to the use of chloroform, is often greatly alleviated by its employment; and that fatty change of the organ which is supposed to render it peculiarly liable to 'paralysis,' is the very form of disease in which chloroform, if properly administered, interposes the most effectual barrier between it and the fatal shock which an operation is apt to occasion. To obtain this good, however, the patient must be completely anæsthetized. If the action be incomplete, the danger is, if anything, augmented. I have frequently had to perform operations of severity when undoubted heart-disease was present, and no cases seemed to me to do better with it. A good many of the deaths under chloroform have apparently been due to patients suffering from heart-disease not being completely insensible when the operation was performed, and the shock killing them. The chloroform is blamed; whereas, what was really wrong was that it was not sufficiently pushed. There are positively no cases which can be submitted to operation in which chloroform is inadmissible." (*British Medical Journal*, Jan., 1876.) Dr. VERGELY, of Bordeaux, (*La France Médicale*, 1879,) has given recent testimony to the same effect.

Habitual Drinkers.—A number of deaths have occurred among habitual drunkards under chloroform. Dr. UTERHART, of Berlin, recommends that in such cases half a grain of morphia be injected subcutaneously, ten or twenty minutes before the chloroform is administered. This materially shortens the period of delirium.

Nervous Shock is said by Prof. GOSSELIN to be a contra-indication.

Of sixteen deaths from chloroform, he found twelve of them occurred in persons who had just received severe injuries, and had not yet completely recovered from the shock.

On account of its tendency to produce *emesis*, chloroform is contra-indicated in *ovariotomy* (PEASLEE) and similar operations on the abdomen.

Danger from Chloroform.—It has been shown by Prof. SCHIFF, of Geneva, that both ether and chloroform may be followed by paralysis of the vascular and respiratory systems; but whereas, in the employment of ether, the paralysis of the respiratory acts always comes first, and hence presents, in the cessation of breathing, a timely warning, in chloroform, on the other hand, the far more dangerous paralysis of the vascular system (*i. e.*, of the heart,) may be the first to appear, and thus present no warning and leave no time for precautionary measures.

In administering this anæsthetic, especial attention should be given to the *pulse*, the *respiration*, and the *eye* (conjunctiva and pupil.)

The *pulse*, at first quick, and it may be weak, should, as soon as unconsciousness sets in, fall somewhat in frequency and gain in force. It should continue regular and strong throughout. Should it become quick and weak, or irregular, then the inhalation must be withheld, unless the irregularity is obviously due to the patient's struggles.

The *breathing* often affords an earlier sign of danger than the pulse. If the respiration becomes shallow, and gradually less frequent, the chloroform should be suspended for a time; should it cease, active measures must be resorted to, as will be described hereafter. What is called "stertorous" breathing, a noisy, catchy respiration, is nearly always a sign of deficient innervation of the respiratory apparatus, and hence the danger. A very similar kind of breathing, however, takes place in operations on the rectum and vagina, which is without danger. The true character of this form may generally be discriminated by noting that it does not occur until the rectum or vagina is manipulated, and is especially loud and noisy when the finger or an instrument is passed into either orifice with any force.

The surest signs of safety and the earliest of danger are afforded by the *eye* of the patient, as exhibited in the condition of the pupil and the conjunctiva. So long as irritation of the conjunctiva causes reflex action, and is followed by winking, there is usually no danger. (RINGER.) The pupil is much contracted in the stage of insensibility,

when no danger is to be apprehended; but on the approach of peril from dangerous narcosis, the pupil dilates. When on touching the conjunctiva reflex action is annulled, and the limbs when raised fall heavily, consciousness of pain is entirely absent.

Death from chloroform occurs usually by asphyxia, owing to closure of the glottis by the tongue falling back, or due to paralysis of the laryngeal muscles; or else by vomited matters passing into the larynx. In all cases the treatment must be prompt:

1. Stop the administration of the anæsthetic.
2. Lower the head below the level of the body.
3. Seize the tongue with the catch-forceps, and pull it forward so that its tip appears well between the teeth.
4. Admit fresh air freely to the patient by open windows, fanning, &c.
5. Commence at once artificial respiration.
6. Apply electricity freely to the heart and through the diaphragm.
7. Let an assistant rub each extremity briskly with a hot towel; dash cold water in the face; insert a lump of ice in the rectum.
8. As soon as the patient can swallow, stimulate with ammonia and brandy.

An expedient suggested by Dr. HEIBERG, of Norway, in chloroform narcosis, is to bring forward the under jaw *in toto*. When the rattling, incomplete respiration begins—that is to say, in all those cases in which the teeth are otherwise forced apart, and the tongue drawn out—he draws the under jaw forward by the following means: Standing preferably behind the reclining patient, the operator places both thumbs on the symphysis of the lower jaw, presses the second joint of the bent forefingers behind the posterior margin of the rami ascendentes of the under jaw, and thus holding the whole bone fast between the two hands, draws it forcibly forward (anatomically speaking.) The most successful impulse is that which would be given if the intention were to lift the whole head and body by this grasp. By this proceeding, and as long as it is continued, the jaw is kept luxated forward. The obstacle to the respiration is removed, and in short, exactly the same result is obtained as if the tongue had been drawn forward and the mouth kept open by a gag.

As an antidote, *nitrite of amyl* has received considerable attention. The amyl should always be in the armamentarium of the medical man. It can be administered from a bottle, or five or six drops may

be placed on a handkerchief, and held to the nose and mouth of the patient. An exceedingly convenient method of carrying the drug is by means of the nitrite of amyl-bulbs made of glass. When required, one of the bulbs can be broken in a handkerchief or towel, and its contents immediately inhaled.

Prompted by this antagonism of the two agents, Dr. W. N. SMART, of Michigan, combined chloroform with nitrite of amyl, using two per cent. of the latter to ninety-eight per cent. of the former. Under the name "chloramyl," a somewhat similar mixture is recommended by Dr. GEORGE E. SANFORD. (*Medical Record*, October 5th, 1878.)

Atropin, as a paralysant of the cardiac inhibitory apparatus, is indicated where there is liability to death from arrest of the heart's action. But, as pointed out by Prof. E. A. SCHÄFER, (*British Medical Journal*, Oct., 1880,) it is necessary to give it immediately before the administration of the chloform, *as a preventive*. The hypodermic injection of atropin *afterwards* is of little value.

What is called *Nelaton's* method of restoration has frequently proved all-sufficient in desperate cases. The patient is seized by the feet and suspended, head downwards: or the body is brought to the side of the table, and the trunk and head allowed to hang down. Artificial respiration is made by pressing alternately the sides and front of the chest, and by bringing the elbows to the sides, and from there below the head. Several minutes may elapse before the respiration is restored, and it is well to hold the patient in this position from five to ten minutes, until all danger has passed.

Galvanization is also an efficient restorative. The current should be passed along the pneumogastric nerve or through the diaphragm.

ETHER.

This anæsthetic is usually preferred on account of its safety. The rules for administering it, and for treating its poisonous effects, are the same as those given under chloroform. As, when mixed with air, its vapor is inflammable, care should be exercised in using it at night, or when employing the actual cautery.

In giving ether, a newspaper cone, lined with a towel, is a convenient apparatus. The cone should be short, so as not to be in the way, and thick, so as not easily to be saturated with the fluid, and thus lose its shape. The cone should be held a little distant from the patient's nostrils when he takes the first two or three inspirations, so that the

ether may be freely diluted with air. As soon as he commences to struggle, the cone should be closely applied. His countenance should be watched and his breathing attended to. The moment his face becomes injected or dusky, the ether should be removed, and the tongue drawn well forward. If the symptoms do not readily disappear, the measures recommended under asphyxia from chloroform must be resorted to (page 48.)

Dr. O. H. ALLIS, of Philadelphia, maintains that the most striking defects of ether, to wit, (*a*) its proneness to irritate the air-passages, (*b*) its comparative feebleness as an anæsthetic agent, (*c*) its long and vexatious stage of excitement, are owing entirely to a defective method of administering it. What ether requires is an opportunity to evaporate, and, under favorable circumstances, when there is a thin stratum of it, its disappearance is almost instantaneous. Any apparatus or vehicle for the administration of ether, that holds it in any quantity and retains it in the fluid state, is not well adapted for its use; while any contrivance that will favor the rapid deliverance of the vapor of ether must, *cæteris paribus*, be more effective.

To reach this point, he has contrived a wire frame-work for keeping many folds of a bandage at a slight distance from each other, and yet having the whole in a compact form that will readily adjust itself to the face. The sides are inclosed, but the ends are left open—the one for the patient's face, the other for the entrance of air and the ready supply of ether.

He has found it very effective. He usually produces complete anæsthesia in females in seven minutes, and with about two ounces of ether. Persons seldom object to taking it, and the stage of excitement is no more *excessive, prolonged or frequent* than with chloroform.

He adheres strictly to the following plan: The patient being freed from all restraint as to clothing, he places the apparatus over the face and adds *a few drops of ether*—hardly enough to give a strong odor of ether. In a few seconds he adds a few more drops, taking care not to give it in too concentrated a form at first. In a few minutes the patient takes deep respirations, and then he adds it more constantly, *not too much to be offensive or objectionable to the patient, and not too little to be efficacious.*

The sick stomach and headache which often follow the use of ether may generally be prevented by administering, shortly before the inhalation, a few drachms of brandy; or, what is said to be equally, if

not more efficacious, a spoonful or two of *bromide of potassium*, half an hour before, as recommended by Dr. A. J. STONE, of Boston.

On the *relative value* of chloroform and ether much difference of opinion prevails. Prof. SCHIFF, of Geneva, has expressed himself to the effect that chloroform should be banished from practice as an anæsthetic agent, except in cases in which extraordinary resistance to the effect of ether shows itself, in which instances it might be allowable to mix a little chloroform with it, in order to produce the commencement of anæsthesia, which should afterwards be continued with pure ether.

An excellent authority, Professor FRANK H. HAMILTON, of New York, says: "In nearly all my surgical operations I prefer ether to chloroform, as being equally efficient and more safe; but in the reduction of dislocations we need complete muscular paralysis, and this is much more quickly and certainly attained by chloroform than by ether, and I am, therefore, in the habit of using chloroform in the reduction of dislocations."

In cases where an immediate effect is required, as in puerperal eclampsia, chloroform is to be preferred. It is generally believed that if chloroform is sufficiently diluted with air, as can be done by letting it fall drop by drop on a handkerchief spread over the mouth, as recommended by Sir JAMES Y. SIMPSON, it is quite as safe as ether.

Dr. TRIPIER insists (*Revue Scientifique*, Nov. 9th, 1876,) that chloroform is, for children, a much safer anæsthetic than ether. Children, he says, under ether seem to "forget to breathe," and die in a manner not explained by asphyxia or cardiac paralysis; these symptoms he has never seen when chloroform is used in them.

ETHIDENE DICHLORIDE.

Some favorable reports on this anæsthetic have appeared. It has greater solubility and volatility than chloroform, acts more rapidly, and the recovery from it is also more rapid. As it has also a more stimulant action on the heart and is rapidly eliminated from the system, it would appear to be a safer agent. The after-effects are usually not unpleasant, vomiting and headache being exceptional. About half an ounce is required to produce anæsthesia in the adult. Some cases of its use are given by J. R. MACPHAIL. (*Half-Yearly Compendium of Medical Science*, Jan., 1880.)

ETHYLIC BROMIDE, OR HYDROBROMIC ETHER.

The ethylic bromide has been tried by M. RABUTEAU on the lower animals, and by Dr. LAURENCE TURNBULL, of Philadelphia, as a local and general anæsthetic. (*Artificial Anæsthesia*, 1879.) The latter holds that it occupies an intermediate position between chloroform and ether, and that it is free from irritating effects upon the lungs and heart. It is a colorless liquid of an agreeable odor and flavor, not caustic, and may be taken internally in doses of half a drachm, soothing pain and not disturbing the appetite. It is sparingly soluble in water, but completely so in alcohol and ether.

In 1879–80 it was extensively employed in Philadelphia by Drs. R. J. LEVIS, H. A. WILSON and others. (See article by the last named in the *Med. and Surg. Reporter*, Aug. 7th, 1880.) The result of these experiments, while developing some special advantages in the rapidity of anæsthesia, proved that the drug is much more dangerous than ether, and probably on the whole can never take the place of it or chloroform. Several sudden deaths occurred under its influence.

METHYLENE BICHLORIDE.

Mr. PHILIP MIALL, surgeon to the Bradford Infirmary, England, who has employed this anæsthetic in a large number of cases, states that insensibility in adults is usually produced in about two minutes. One dose of a drachm is usually sufficient to produce anæsthesia. Vomiting occurs in but a small number of cases. The respiration is usually quickened, the pulse lessened in frequency. In its administration, it is important to exclude rather than to admit air, and for this purpose a close-fitting inhaler should be chosen. The apparatus should be well applied to the face. (*Half-Yearly Compendium of Medical Science*, July, 1870.)

On account of the immunity from sickness of the stomach it gives, this anæsthetic is much used in ovariotomy; and on account of the rapidity with which persons can be brought under its influeuce, it is preferred in some English ophthalmic institutions where many operations are performed.

Mr. J. T. CLEVER, of England, states that he has not found its effects so uniform as chloroform, and attributes this to the compound nature of the body, as indicated by its variable boiling point.

The bichloride has been used both alone and in combination quite

extensively by Dr. C. BELL TAYLOR, of London, who gives a generally favorable report upon it. (*Medical Press and Circular*, Jan., 1874.) His opinion is that it is not quite so convenient as chloroform on account of the inhaler employed, but it is far more rapid in its effect; and when there are a great number of patients to be operated upon, and time is of importance, this is the anæsthetic which will always be preferred. The bichloride, he states, is best administered with an inhaler that almost excludes the air, though a little may be admitted at the commencement; two or three drachms should be poured on, and the agent be pushed when the patient shows signs of going off; when fully off, remove the inhaler, and do not give another inspiration unless the patient shows signs of returning sensibility. Patients succumb very quickly to the bichloride, and recover as quickly; hence, it is a most convenient anæsthetic, and, perhaps, safer than chloroform; it is, however, like chloroform, a lethal agent, and requires careful watching. Attempts have been made to combine it with ether, and the result has been the discovery of a definite compound called *ether methylene*, which is a very convenient and very safe anæsthetic administered in the same way as the bichloride.

The strongest advocate of this anæsthetic has been Mr. T. SPENCER WELLS, F. R. C. S., whose opinion, as expressed before a late (1877) meeting of the British Medical Association, is so decided that it merits quotation in his own words:

"In 1872, I made known my opinion that all the advantages of complete anæsthesia, with fewer drawbacks, could be obtained by the use of bichloride of methylene or chloromethyl, than by any other known anæsthetic. That was the result of an experience of five years, and of three hundred and fifty serious operations. The experience of the five succeeding years up to the present time, with more than six hundred additional cases of ovariotomy, and many other cases of surgical operations, has fully confirmed me in this belief. Given properly diluted with air, the vapor of chloromethyl has, in my experience of ten years, with more than one thousand operations of a nature unusually severe as tests of an anæsthetic, proved to be, without a single exception, applicable to every patient, perfectly certain to produce complete anæsthesia, relieving the surgeon from all alarm or even anxiety; and its use has never been followed by any dangerous symptom which could be fairly attributed to it. I wish I could speak as confidently of the chemical composition of the fluid sold as bichloride

of methylene as I can of its anæsthetic properties. But whatever may be its chemical composition, whether it is or is not chloroform mixed with some spirit or ether, or whether it is really bichloride of methylene, I am still content with the effects of the liquid sold under that name, when properly administered. The only deaths ever attributed to it were, I believe, rather due to asphyxia. No air was given with the methylene. By Junker's apparatus, air charged with methylene vapor is given, not the vapor itself; and, so employed, it has always been in my experience both efficient and safe."

NITROUS OXIDE.

This is a safe and valuable anæsthetic in many cases. When successfully given, the patient appears to fall asleep without any delirium or excitement; but if the operation be one leaving much pain behind it, the patient sometimes will have a dream more or less connected with it, and then wake up rapidly and completely. It is by far the best anæsthetic for many short operations, such as the extraction of teeth, opening abscesses or boils. It answers very well in operating for strabismus. Removal of the eyeball has been performed for a lady, who said she had no consciousness of the operation. It is well suited for examining hysterical cases, wrenching stiff joints, and reducing luxations of recent date. It is not suitable for cases where it is necessary to keep the patient quiet more than three or four minutes; but if the patient be allowed to recover consciousness after one inhalation before another is commenced, the anæsthesia may be kept up tolerably well for half an hour.

In administering nitrous oxide, a plentiful supply of gas is essential to success. There is no fear of patients inhaling too much at first. They should be told to breathe deeply and slowly. The administrator should always use a double-valve inhaler, attached by a hose of large calibre directly to the reservoir of gas, so that a quite large column may pass directly to the patient. In this way the respiration in free, whereas if the column of gas is small, the respiration is more or less labored. An inhaler with a mouth-piece in the centre to pass between the teeth, leaves the mouth open for the operation when anæsthesia is complete.

Anæsthesia is supposed to be produced with it by supplying the system with carbon more readily than it can be eliminated. The patient passes quickly into a perfect state of anæsthesia, which is

always plainly indicated. The condition is of shorter duration than that produced by chloroform or ether. The functions of the body are slightly exalted, and respiration fully supported. After the lapse of from two to five minutes, the patient is in as perfectly a normal condition as before inhaling it.

Of the *risks of its administration*, it is evident, from the many thousands of cases in which the gas has been given, and the extreme rarity of a fatal accident from its use, that, in the hands of a skilled and careful operator, no great risk attends the employment of this anæsthetic; but it is also obvious that, to a patient with a feeble, fat heart, the distension of the right cavities which accompanies the disappearance of the radial pulse, and the general lividity of the features, must be attended with some degree of risk, and the danger must be increased when, the muscles of the trunk and limbs being convulsed, the pressure of the contracting muscles upon the veins drives the blood forcibly towards the right cavities of the heart, and so adds to their distension.

Prof. PAUL BERT, of Paris, discovered, in 1879, the use of mixed nitrous oxide and oxygen, *under tension* or compression, so that the patient respires, with the gas, his ordinary supply of oxygen. A special chamber is required, and a pressure of two atmospheres is used. The value of this anæsthetic mixture of about eighty-five parts of nitrous oxide and fifteen of oxygen, promises to be very useful and practical. With this mixture, employed in compressed air, the patient does not get blue in the face, and the natural complexion, pulse and breathing seem to be preserved. Moreover, it is not preceded by the period of agitation which often proves so tedious and troublesome, and is not followed by the stage of reaction which often upsets a patient for several consecutive hours.

ANÆSTHETIC COMBINATIONS.

M. SAUER, OF BERIN.

This surgeon dentist recommends the following compound as free from the dangers attendant on the use of either chloroform or ether alone:

41. ℞.	Chloroform (liquid),	6 grammes.
	Atmospheric air,	¾ kilogramme.
	Protoxide of nitrogen,	16 kilogrammes.

GUY'S HOSPITAL, LONDON.

42. ℞. Alcoholis, f.℥j.
Chloroformi, f.℥ij.
Ætheris sulphurici, f.℥iij. M.

This is preferred where chloroform is badly taken; and the safest administration is said to be to put the patient under the influence of chloroform, and then to keep him anæsthetized by the use of this mixture. It should be well shaken. In this country it has been extensively tried, with satisfaction. (See *Medical and Surgical Reporter*, Oct., 1872.)

DR. W. L. ATLEE, OF PHILADELPHIA.

43. ℞. Chloroformi, f.℥j.
Ætheris sulphurici, f.℥ij. M.

The objection to the immediate mixture of the two anæsthetics, such as this, is that they do not mingle, and the patient is apt to take the ether first and then be overcome by the heavier chloroform. It is important, therefore, that the bottle be well shaken each time before the contents are thrown upon the inhaler.

Dr. E. SANSOM prefers a mixture of one part of chloroform to either one or two of absolute alcohol. Dr. BENJAMIN W. RICHARDSON combines ether with bichloride of methylene.

Of these various combinations, that used at Guy's Hospital (F. 42) has obtained the widest popularity, and should be employed in preference to either drug alone, when it is believed the patient is dangerously susceptible to anæsthetics.

For *chloramyl*, see page 49.

DR. WACHSMUTH, OF BERLIN.

This writer (*Allg. Wiener Med. Zeitung*, Nov. 15th, 1878,) recommends:

44. ℞. Chloroformi, 5 parts.
Olei terebinthinæ, 1 part. M.

He claims that the chloroform is more rapidly absorbed, and its danger much lessened.

LOCAL ANÆSTHETICS.

ACETIC ACID.

The following, mixed in a thin flask, will produce vapor which induces local anæsthesia in five minutes:

45. ℞. Glacial acetic acid,
Chloroform, āā partes equales.

ALCOHOL.

Dr. HORVATH, of Kieff, has proposed a method of employing alcohol for producing local anæsthesia. It is well known that if the hand be immersed for a short time in ice-water, severe pain is caused. Dr. HORVATH found that no such pain was produced when the hand was immersed in cold alcohol, not even when the temperature of the alcohol was as low as 5° C. Glycerine was found to possess a similar property. Ether caused pain, and quicksilver more acute pain still, causing the speedy withdrawal of the finger when plunged into this liquid at a temperature of 3° C. It was next ascertained that when the finger was held for quite a long time in alcohol having a temperature of 5° C., no pain was experienced. Moreover, although the faintest touch was distinctly perceived in his finger, no pain was experienced from sharp pricks. The application of cold alcohol has the effect of depriving the part of the special sensibility to pain, without, however, impairing the delicacy of the general tactile sensation, which, as is well known, resides in the superficial integument.

CARBOLIC ACID.

In the application of the actual cautery, and such procedures, the pain may be avoided by the application of carbolic acid. This local anæsthetic is not used with near the frequency which its efficacy deserves.

Pure carbolic acid should be applied to the parts to be cauterized, which are then covered with a light compress; after a short time, before the anæsthetic effect has passed off, apply the cautery. There will be a complete absence of pain. It is immaterial whether the acid be liquid or crystallized; in the former case it is to be applied with a brush, in the latter it extends over the parts as it liquefies.

Dr. J. H. BELL prefers to soak the part, when practicable, in a three per cent. solution of the acid for fifteen minutes, and then to draw a brush dipped in the pure acid along the line of the incision. (*American Journal of the Medical Sciences*, Oct., 1870.)

Dr. ANDREW H. SMITH, of New York, in illustration of this anæsthetic property, relates that he painted on his forehead a spot an inch in diameter with an eighty-five per cent. solution of the acid. For a minute it caused a slight burning, then the skin became quite numb, whitened and shriveled; at this point he made an incision half an inch long without even feeling the knife, the wound from which afterwards healed as usual. Three hours afterwards he thrust, without pain, a needle into the skin; and next he applied a blister to the carbolized skin, without causing pain or vesication. He had used this application in opening whitlows, and found the pain of the operation greatly less than ordinary.

Dr. L. H. A. NICKERSON, of Quincy, Ill., has presented strong evidence that it is the *cresol* and not the *phenol* in carbolic acid which possesses the anæsthetic power. (*American Medical Bi-weekly*, March 16th, 1878.) He has found the following an admirable mixture to allay the acute pain after the application of caustics, in burns and scalds, active gonorrhœa, etc.:

46. ℞. Acidi carbolici (Calvert's No. 4), gtt. ij.
Aquæ calcis, f.℥j. M.
For local use.

The acid must be the impure form, containing cresol, as the preparation known as No. 4 of Calvert's. The crystallized acid or phenol does not produce the same results.

CARBON BISULPHIDE.

This substance has been employed by Dr. S. R. NISSLEY, of Ohio. His mode of application is this: Place a pledget of cotton in a wide-mouthed vial, saturate it well with the bisulphide, and apply it to the painful part, and as soon as the patient complains of a smarting sensation, change the position of the bottle, carefully following the course of the principal nerve that seems to be distributed on the part.

In the *Gaz. Med. de l'Algerie*, Dr. CHARLES BERNARD relates several cases in which sulphide of carbon was employed to produce

local anæsthesia. In one case six grammes, poured drop by drop on the part, and made to evaporate quickly, acted efficiently; and in another case, ten grammes applied by a spray apparatus enabled the operator to make six deep incisions into a large carbuncle without inflicting pain.

CARBONIC ACID GAS.

As early as 1835, Dr. DEWEES, of Philadelphia, reported the employment of carbonic acid gas as a local anæsthetic in carcinoma uteri.

Dr. THEODORE A. DEMMÉ, of Philadelphia, has reported a number of cases in the *Medical and Surgical Reporter*, Feb. 18th, 1871, in which the "gas had proven to be of inestimable value, not only in relieving agony and suffering, but even in saving life, when all other means would probably have failed." These cases were of painful labor with threatening exhaustions, and rigid, unyielding and irritable uteri.

The materials used for generating the gas are the bicarbonate of soda and tartaric acid.

A common pint bottle, having attached an elastic tube about three feet in length, passing through the cork, should be provided. Into this pour three or four ounces of water, then introduce half an ounce of bicarbonate of soda, and lastly the same quantity of tartaric acid in a granular or crystalline form. The free extremity of the tube may be then applied to the sensitive part, so that the gas is thrown upon it in a stream. Some precautions are required. The patient's head should be elevated, and abundance of fresh air furnished. In obstetric cases the child, as soon as born, should be removed from the bed.

CHLORAL HYDRATE.

This drug is an efficient paralysant of the sensory nerves. In cases of extensive burns of the first and second degrees, Dr. S. S. RIDDELL, of Wisconsin, reports almost immediate relief from

47. R. Chloral hydrate, ℥ iij.
Carron oil, f.℥ vj. M.
Use locally.

The first application causes a stinging sensation, rapidly followed

by entire relief. (*Medical and Surgical Reporter*, January, 1877.) Another form in which to use it is:

48. ℞. Chloral hydratis,
Pulveris camphoræ, āā q. s. M.

The two solids unite to form a viscous liquid of considerable power to reduce pain.

Dr. W. B. KESTEVEN, of London, (*Lancet*, Feb., 1877,) has used the following with gratifying success in neuralgic pains, cancer of the breast, etc.:

49. ℞. Chloral hydratis, ℥ ss.
Glycerinæ, f. ℥ ss.
Aquæ, Oj. M.

Saturate lint, apply to the part, and cover with lint or spongio-piline, wrung out of warm water.

ETHER.

The local application of ether spray was proposed by Dr. BENJ. W. RICHARDSON, and has at times been popular. The fluid should be rectified, perfectly neutral, sulphuric ether, and held at a distance of two inches from the part to be affected. Dr. LETAMENDI, in the *Archives de Physiologie*, Nov., 1875, adds the following directions:

After about two minutes the part of the skin on which the spray has fallen becomes red, and is the seat of a disagreeable sensation of cold; there is no sensation of burning in the part.

If, at this moment, an incision, eight or ten millimetres long, is made with a convex bistoury in the centre of the reddened part, not being carried deeper than the papillary layer of the cutis, immediately the incision is made, there is suddenly produced an anæmic zone, which enlarges outward from the point incised, as a circle goes on enlarging on the surface of water into which a pebble has been dropped.

If the spray is again directed for a few seconds on the part which has thus become anæmic, the region becomes perfectly bloodless and completely anæsthetic. The tissues when cut are like frozen fat, and have lost their elasticity. Around the white circle there is a zone in which the anæmia is not absolute. The spray directed on this zone speedily makes the anæmia and consequent anæsthesia complete. The anæsthesia can thus be carried around or along a limb.

Another plan of using ether is the following:

50. ℞. Pulveris camphoræ, ℥ iv.
Etheris sulphurici, ℥ j. Dissolve.

By rubbing this mixture on the skin for about a minute, a transient, superficial loss of sensibility is obtained, which renders slight operations almost painless.

Dr. LANENSTEIN, of Hamburg, writes (*Centralblat für Chirurgie*, July, 1880,) that local etherization is now unduly neglected. At the Hamburg Hospital it is regularly employed in opening abscesses, making incisions in phlegmon, &c., counter-openings, tenotomy, operations on the bursæ, the removal of small foreign bodies, and the extirpation of small cutaneous and subcutaneous tumors. It is also employed in phimosis, but as a general rule it should be avoided in operations about the genitals, as the ether causes so much pain, and the intervention of a thick layer of moistened wadding is required. The spray is much to be recommended in the removal of ingrowing toe-nail, and patches of lupus may be scooped out under its action. Affections of the nose or lips should be exempted, as the inspiration of the concentrated ether may prove dangerous, as it may also in operations on the gums, which are excessively sensitive to its action. The cheeks, forehead, and aural region may be acted on, protecting the eyes with moistened wadding. The great reduction of temperature which is produced does not interfere with the healing of the wounds. Great care is required not to bring the ether near light of any kind, for fear of explosion; but this inflammability does not contra-indicate its employment with the actual or galvanic cautery—the parts being first dried with wadding. The spray is very useful during transplantation, especially in private practice, when the patient has himself to supply the grafts. Under the spray they can be removed without any pain, and owing to the hardness of the skin produced, this can be more easily effected. "To sum up my experience with ether spray, it is well suited for short and superficial operations, of small applicability to extensive operations, and is unsuited for those on the nose, lips, scrotum and mucous membranes."

THE ESMARCH BANDAGE.

The use of the *Esmarch Bandage* has been found by M. CHAUVEL, surgeon, to bring about a numbing of sensation, and has been applied by him as a local anæsthetic. Diminution of sensibility was observed

in each individual, not appearing immediately, but in five to twenty minutes. Insensibility appeared more quickly in the upper than in the lower extremities, its intensity depending on the tightness of the application; it first appeared in the peripheral portion of the trunk, and gradually spread to the upper regions. Insensibility to painful impression was first noticed, but whether this extended beneath the surface was not ascertained.

In two operations for ingrowing toe-nail with the use of elastic compression, very little complaint was made by the patient. In a case of ischiatic trouble the actual cautery was used after compression; anæsthesia, however, was incomplete. It is evident that elastic compression would fail in bringing about complete anæsthesia unless the ligature was placed so near the central portion of the limb as to cause other and inconvenient results. The conclusion is that, as an anæsthetic, compression cannot exclude chloroform or ether.

ICE.

The application of ice to a part lessens its sensibility. A still greater degree of cold is obtained by *Arnott's freezing mixture.*

51. ℞. Pulverized ice, 4 oz.
Pulverized common salt, 2 oz.
Mix quickly and thoroughly with a knife.

This mixture is placed in a thin gauze netting, and laid upon the part to be benumbed. The netting should occasionally be raised to watch and equalize the remedy. Ordinarily from fifteen minutes to half an hour will be required to produce the desired anæsthetic effect. The application is not without risk, as the part, if not carefully watched, may be frost-bitten.

IODOFORM.

This has been used with success as a local anæsthetic, and obtunds the sense of pain. It has, however, such a penetrating, disagreeable odor that it has not become popular.

MENTHOL.

This crystalline product of the Japanese oil of peppermint is an

efficient local anæsthetic, both for the relief of acute pain and also for producing temporary loss of sensibility in a part about to undergo a slight operation.

MORPHIA.

The sulphate of morphia has been used hypodermically before surgical operations to bring about local anæsthesia. Dr. SPESSA recommends the following:

℞. Morphiæ sulphatis, gr. j.
Aquæ destillatæ, f. ʒj. M.
For hypodermic use.

POTASSIUM BROMIDE.

It is stated by Dr. MARTIN F. COOMES, in the *Louisville Medical News*, 1876, that a saturated solution of bromide of potassium applied to a muscle, or injected into its vessels, will cause paralysis. When first applied to a mucous membrane it is irritant, and then anæsthetic. A wash or gargle of grs. xv–xx to aquæ f. ʒ j, will often be found very serviceable to produce temporary local anæsthesia of the mouth, fauces, urethra or pharynx.

RHIGOLENE.

This substance, a product of the distillation of petroleum, and the lightest liquid known, was suggested by Dr. HENRY J. BIGELOW, of Boston, for freezing the skin by use in a spray-producer. This it will do in from five to ten seconds. It is serviceable in opening abscesses and felons, in removing small tumors, in amputations of the fingers and toes, and similar minor operations. It is very inflammable, however, and if the application is at all protracted, discoloration of the surface and desquamation of the cuticle are liable to follow.

SAPONIN.

This is an amorphous, white powder, soluble in water, obtained from the *saponaria officinalis* and other plants. It is stated by Dr. KOHLER (*London Medical Record*, February, 1874,) to bring about, applied in a concentrated solution, paralysis of both motor and sensory nerve filaments. Later experiments have shown it to be unmanageable and dangerous.

FARADIC ANÆSTHESIA.

The benumbing effects of the faradic current on the nerves has been utilized for the production of local anæsthesia. For opening abscesses a strong faradic current should be directed through the parts as the incision is made. The relief thus afforded is slight, but is positive. (BEARD.)

Faradic anæsthesia has been chiefly used in the extraction of teeth, where it is certainly of some service; but on account of the popularization of nitrous oxide it has fallen into disuse. It may still be occasionally applied with advantage for the relief of the irritation caused by the application of caustics to the larynx, eye or uterus. In the extraction of foreign bodies under the skin or nails, it has also applications which should not be neglected. Of course, its employment is confined to short and slight operations.

ANÆSTHESIA OF THE LARYNX.

Of the various methods of applying anæsthetics locally to the larynx, Professor SCHRÖTTER'S is most popular in Germany. His method is as follows: The evening before the operation, the glottis is painted with pure chloroform about a dozen times, and an hour afterwards with this solution of morphia:

53. ℞. Morph. hydrochloratis, grs. xij.
Aquæ destillatæ, f. ʒ ij. M.

During the use of the morphia the patient must not swallow his saliva; indeed, after each use of the brush it is prudent to let him gargle his throat with a solution of tannic acid. Early the next morning the operation can be undertaken. If the patient be still sensitive, the whole proceeding must be repeated.

Prof. GERHARDT recommends as an anæsthetic, painting the laryngeal mucous membrane with a solution of *colchicum*.

Dr. FAUVEL, of Paris, objects to the German practice, though without apparent good grounds. He says the sucking of ice during the hour which precedes the operation, and the use of strongly astringent gargles, or of a gargle composed of a concentrated solution of *bromide of potassium*, are the best means of producing local anæsthesia. (*Dobell's Reports*, 1876.)

Dr. GLASGOW (*St. Louis Med. and Surg. Journal*, Dec., 1879,) recommends *carbolic acid* or *chloral*. He has found, 1st. Carbolic acid, in strong solutions, produces anæsthesia of the larnyx and relieves pain. The application causes an intense burning, which lasts about twenty seconds; the anæsthetic condition continues about two hours. 2d. The hydrate of chloral, in strong solution, applied to the mucous membrane, produces anæsthesia. The application causes a severe burning pain, lasting over a minute; the anæsthesia does not continue longer than one-half hour. 3d. The strength of the solution necessary to produce anæsthesia varies somewhat in different persons. 4th. It is recommended that the weaker solution be applied first, and this can be followed by the stronger solution. The first application is the only one causing pain. 5th. No bad results, either constitutional or local, have followed the application of strong solutions of carbolic acid.

Other surgeons (ZAWERTHAL, 1880,) have stated that there is considerable danger of laryngitis or of poisoning in any of these methods of anæsthetizing the larynx.

III. THE DRESSING OF WOUNDS.

The Treatment of Wounds—The Open Treatment—Anhydrous Dressings—Raw Cotton Dressings—Water Dressings—Alcoholic Dressings—Earth Dressings—Antiseptic Dressings (Carbolic Acid, Boracic Acid, Carbolated Camphor, Chloral, Sulphites and Hyposulphites, Sulphurous Acid, Lead Lotions, Terebene, Permanganate of Potash, Carbolated Earth and Bran, etc.)—Résumé.

THE TREATMENT OF WOUNDS.

The aim of the surgeon, when called upon to treat an open wound, is to bring about the repair of the tissues in the manner most conducive to the future welfare of the patient. Experience has not yet positively decided whether this can best be done by securing union by the "first intention," or by the slower process of granulation. The French surgeons, headed by the eminent Barron LARREY, believe that the latter more certainly avoids dangerous complications and sequelæ, and leaves the cicatrix, when healed, less painful and less liable to annoy the patient. To some extent, the English surgeons acknowledge this. Professor HUMPHREY has long advocated the encouragement of suppuration in wounds for the removal of cancer. He even retards the healing process by the insertion of issues, etc., believing that this tends to delay and prevent the return of the disease. Generally, however, both English and American surgeons pride themselves on the rapidity with which the wound heals; and their dressings are aimed to bring about union by the first intention, without, perhaps, sufficiently reflecting on the current and future dangers such success involves. Most of the dressings which will be mentioned in this chapter, therefore, have been devised with a view of inducing early healing. They are very various, and illustrate the wide differences of opinion among their originators.

THE OPEN TREATMENT OF WOUNDS.

This simplest of all methods of treating amputations and other wounds has been reported very favorably upon from the hospitals of Berne, Königsberg, New York city and elsewhere, and by such surgeons as Dr. F. PEYRE PORCHER, of Charleston, S. C., VINCENZ VON KERN, EDWARD SCHWARZ, Professor BILLROTH, etc.

DR. BUROW, OF KÖNIGSBURG.

This writer gives, in brief, the following as the essentials of the system he follows: In a case of amputation of the breast, he carefully checks the bleeding by the use of silk ligatures, which he cuts off short. The wound is then left absolutely open, being protected from dust and flies by simple oiled cloth. No sutures or plasters are used. When the first oiled cloth is loosened by suppuration, a second is applied, dressed with a simple ointment. When granulations spring up luxuriantly, the cloth is wet with a solution of acetate of alumina. This is the whole treatment. After amputation of the limbs, he first ligates the larger vessels before loosening the Esmarch's tube, completing the ligations after removing it. The wound is then left open for half an hour, with the double object of guarding against secondary hemorrhage and of allowing the surface of the wound to ooze with a serous fluid. Then he puts in three sutures, securing them with a loop, and not a knot, so as to allow for swelling of the tissues. Two or three strips of plaster are placed between the sutures, and the lower angle of the wound is left wide open for the free escape of discharges. Then, by position of the limb and careful watching, it is made sure that the secretions can escape freely. He insists on the greatest cleanliness on all hands, and never uses sponges a second time.

PROFESSOR F. PEYRE PORCHER, M. D., OF SOUTH CAROLINA.

In a case of circular amputation of the upper third of the thigh, Dr. PORCHER describes the dressing he employed as follows: A bit of soft linen cloth, fifteen to twenty inches in length, was torn into strips an inch wide; these were dipped into a basin of cold water, and being applied, one after the other, to the under surface of the limb, they were brought over and down tightly, so as to overlap the stump

six or eight inches on each side, thus bringing the lips of the wound into close co-aptation.

The strips being wet, they adhere tightly to the skin and take the place of adhesive plaster, to which, in many respects, they are infinitely superior. To make sure that they will accomplish this purpose perfectly, and be retained in position, a few turns of a roller bandage, also wetted, may be passed around the stump, and over the free ends of the strips. Cold water is afterwards applied to this dressing, either intermittingly or constantly, by hand or by irrigation, that the strips may be kept wet and the rising temperature abated. A single narrow strip of diachylon plaster may take the place of one of the strips, to give greater security, if there is any apprehension on this score, or at a later period, when it becomes needless to continue the application of cold water.

There are several great advantages ensuing from this procedure; the wound is kept perfectly clean and cool, the inflammation is subdued by the cold water, the purulent discharges escape freely between the edges of the strips, they are easily removed, there is absolutely no disturbance during warm weather from flies. An occasional application of a weak solution of spirit, carbolic acid, or Labarraque's fluid, may be made to the wounds at the daily dressing, to disinfect and stimulate when these objects are desirable; and finally we avoid all trouble which follows the removal of diachylon plaster.

PROF. JAMES R. WOOD, NEW YORK.

No one in this country has given closer attention to the treatment of amputations by the open method, nor with better result, than this surgeon to Bellevue Hospital. The details of his plan are as follows: After a limb has been amputated, the flaps are not even approximated, but left entirely open. A pillow of oakum is placed under the stump, which is allowed to rest upon this support until the wound is nearly healed. A small piece of gauze is placed over the contour of the stump, and a cradle is placed over the limb, so that the clothes may not come in contact with the painful extremity. This is all the dressing that is employed; no sutures are used except in the lateral skin-flap method, as will be described. No adhesive plaster is employed, no oil-silk is placed over the stump, no bandage is applied, no dry charpie is stuffed into the wound, no fenestrated compresses are

placed between the flaps; in other words, the stump is left entirely alone, just as the surgeon made it in his amputation. The wound is thus allowed to drain freely, and the stump is gently washed at frequent intervals by means of an Esmarch's wound-douche. The water in this irrigator is impregnated with crystals of carbolic acid, and, after this ablution, balsam of Peru (which makes a fine stimulating application) is poured over the granulating surface. The discharge which falls from the wound is removed every few hours in order to secure perfect cleanliness; and it is a fact worthy of observation that this discharge will not decompose when exposed to the open air, but that it requires a warm temperature, such as exists in the stump itself, in order to develop putrefaction. The pus, thus coming away from a nidus of putrefaction which would otherwise be formed, falls upon a piece of sheet-lint where the temperature is cooler, and thus does no harm. The stump is then washed at frequent intervals until suppuration has nearly subsided in the wound, and then the flaps are gradually approximated by means of strips of adhesive plaster. Too much importance cannot be attached to this method of operating by the lateral skin-flaps. It affords the best facility for free drainage, and makes the most serviceable stump. It is important to dissect the flaps very long, when they are subjected to the open treatment, as shrinking often follows exposure to atmospheric influences. During the entire healing of the wound the greatest possible care is exercised in reference to the use of the instruments necessary to perform the dressing of the stump. No sponges are ever used in the wards. Each patient has his own bottle of balsam of Peru, and every instrument used in the dressing of one stump is thoroughly washed in carbolic-acid water before it is employed in the dressing of another. So far as has been practicable, a different set of scissors, dressing-forceps, and other instruments employed in the manipulation of a dressing, are used, so that each patient has his own instruments, and in this way absolute cleanliness is secured. Each dresser invariably washes his hands in carbolic-acid water after dressing one case before undertaking another, and any one who is dressing unhealthy wounds in the pavilion, or making autopsies, is not allowed to even assist in the daily dressing of healthy wounds. To some this red tape may seem absurd; and it is certainly true that one must be thoroughly convinced of the necessity of these measures before he can be induced conscientiously to observe them. The advantages claimed are:

1. That suppurative fever is very much diminished, and in some cases almost entirely obviated, by this method of dressing.

2. That the tendency to the formation of abscesses is very much lessened.

3. That the predisposition to erysipelatous inflammation is diminished.

Wounds thus freely exposed to the air, when kept for some time in one position, and so placed that the discharges easily escape, are said to succeed as well as wounds treated by the other methods; and this opinion is supported by statistics advanced by surgeons who have given the plan an extensive trial. The explanation offered of its success is that part of the secretions form a crust upon the surface of the wound, the rest flows away, and the wound remains odorless. The crust is dry, and consequently unfavorable for the development of spores that may fall upon it; and when it comes off, it discloses a healthy, granulating, perhaps partly cicatrized surface, which cannot be easily injured by contact with ferments. This is the "healing under a scab" of the English authors. BILLROTH says the method was first introduced in 1856, by VEZIN, and that he himself adopted it in 1860, and has since employed it, with the best results, in amputations, resections, and after the removal of many tumors. Its chief advantage is that it protects against the dangerous primary phlegmonous inflammations, by allowing free escape of all the secretions; but it does not protect against erysipelas and hospital gangrene, and is useless when inflammation has once set in. If the wound is irregular, and permits the accumulation of pus and secretions, there is danger of inoculation by micrococci.

THE ANHYDROUS DRESSING OF WOUNDS.

MR. SAMPSON GAMGEE, SURGEON TO THE QUEEN'S HOSPITAL, BIRMINGHAM.

This surgeon (*The Lancet*, Dec. 23d, 1876,) advocates *dry* and *rare* dressings in the treatment of all wounds, whether the injured parts be soft or hard, skin, bones or muscles, or all combined. Drenching wounds with water during an operation, and washing them with it afterwards, are mistakes. Water favors decomposition, which is the enemy of healing action. After an operation wound, the cut surface is first thoroughly dried with a soft sponge; the edges are then accurately approximated, and kept so with a few strips of lint soaked in Richardson's styptic colloid, (see Index,) or else with numerous points of silver suture; if the surface is large, it is dressed with a layer of fine cotton wool, such as is used by jewelers, and over this, fine picked oakum; a well-adapted bandage exerts gentle and firm compression on the parts. This dressing should not be touched for several days—four to six—and then the use of water should be scrupulously avoided. To remove the styptic colloid, a mixture of alcohol and ether may be employed, or equal parts of absolute alcohol and distilled water, warmed to a little above the heat of the body. CHASSAIGNAC'S drainage tubes are invaluable to convey the products of suppuration from the wound.

MR. ROBERT HAMILTON, M. R. C. S.

The anhydrous dressing of wounds has also been strongly insisted upon by Mr. ROBERT HAMILTON, M. R. C. S., of Liverpool. (*Lancet*, May, 1877.) He regards the use of water, either in washing the wound or as a lotion, as a prolific source of germs, and therefore carefully to be avoided. Even when mixed with carbolic acid, as in Mr. LISTER'S applications, it may still act in this way. He prefers to cleanse the wound with *alcohol*, and to apply some such dressing as dry lint, or lint saturated with oil, or carbolated oil, or compound tincture of benzoin, placing upon this a little oakum and a light bandage. Instead of using as a spray a solution of carbolic acid, as does Mr. LISTER, he prefers a mixture of one part of compound tincture of benzoin to four parts of methylated spirits. Or, he dusts the surface of a burn, for example, with a dry powder, as equal parts of

starch and oxide of zinc. He has found either of these methods leads to better results than when water, either by washing the surface or applying it as a dressing, has been used. It must not, however, be understood that he advocates the leaving of wounds uncleansed from dried, loose scabs or decomposing pus. On the contrary, the skin round a wound should be kept scrupulously clean. There are other methods of carrying out the anhydrous dressing of wounds, such as the use, in the first instance of collodion, to close the wound, or of clotted blood, with dry lint superimposed, or of picked oakum or tenax. Under any of these a wound of moderate size often heals by first intention.

RAW COTTON DRESSING.

DR. ALPHONSE GUÉRIN, OF PARIS.

The adoption by this surgeon of raw cotton as a dressing for wounds was a result of the demonstrations of PASTEUR, that putrefactive fermentation is due to the presence and growth of vegetable organisms, which float in the air and thus gain admittance to fresh wounds; and as the experiments of Professor TYNDALL show that these minute bodies become entangled in the meshes of cotton wool, it occurred to M. GUERIN, who was at that time attached to the Hôpital St. Louis, as a possible source of advantage. It was during the siege of Paris, when nearly every amputation was followed by fatal pyemia. He forthwith tried the cotton as a dressing on several patients, binding it upon their wounds in liberal quantity, and keeping it accurately applied by firm compression with bandages. To his surprise and delight, he found that the chill, by which the advent of the fatal complication is always heralded, did not occur, and his patients went on to get well. Encouraged by this experiment, he repeated it with equal success; those dressed with raw cotton were found to do well, while others in the same ward died of the prevailing endemic. The result was so remarkable that surgeons from other hospitals came to St. Louis to witness the rare sight of patients recovering after amputation, and themselves adopted this mode of dressing wounds. Shortly, the use of raw cotton was systematized as a surgical dressing, and it has since been very generally employed.

The details of the dressing are as follows: After the operation has been completed, bleeding arrested, and the surface of the wound washed with water, or some weak disinfecting solution, a large bunch of cotton-wool is placed between the lips of the wound, and the whole limb is then enveloped in a layer of cotton eight or ten inches thick, which is then bound down very firmly with roller-bandages, which are tightened on the following day, and then the dressing èmains untouched for about three weeks. If the pus makes its way between the limb and the dressing, and appears after a few days at its free margin, additional bunches of cotton are placed over the edge and bound down. Clinical experience shows that patients whose wounds are dressed in this way generally remain free from fever and pain, eat and sleep well, and make good recoveries.

After a circular amputation of the thigh, an assistant steadies the stump, while another pulls apart the edges of the divided integument, and the surgeon proceeds to fill the cavity thus presented to him with small masses of cotton torn from the sheet of wadding, small at first, and applied accurately to every part of the cut surface, then larger masses as it becomes filled, and then layers of the wadding are applied over and around the stump and upon the hip and pelvis, and over all a spica-bandage put on, with great care, and as much compressing force as possible. No air must come in contact with the wound that has not filtered through the thick mass of cotton. Moreover, this cotton must be of good quality, fresh from the manufactory, and it must not have been exposed to the air of the hospital. Under favorable circumstance, he has found it the best plan to leave this dressing in place about two weeks, when the granulating surfaces are usually found ready for approximation for final union; but he never renews a dressing in the foul air of a ward. Tarlatan and collodion straps are preferred to strips of plaster, as more transparent. M. GUÉRIN claims that this method differs from that of "occlusión," because air can pass freely through the cotton, which acts only as a filter, freeing it from all spores and ferments. PASTEUR says that ferments are undoubtedly present in the cotton and in the wound, but that the physical condition of the pus is rendered unfavorable for their multiplication by the absorption of its liquid portions, and he advises exposure of the cotton to a temperature of about 400° Fahr., before application, as an additional precaution. However that may be, the

method has two evident advantages—equable temperature, and complete immobility of the limb.

M. GUÉRIN rarely or never employs his dressing except where the limb can be covered for a considerable distance above the wound or operation. He covers to the middle of the thigh, for example, after CHOPART'S operation. The compression by the bandage, as above described, he lays much stress upon as an essential point in the treatment. Secondary hemorrhage can hardly occur when the bandage is properly applied. In the rare cases of pyemia occurring under this dressing, the rigors take place at longer intervals and are less severe than in other cases.

WATER DRESSINGS.

The employment of simple water, without medication, as a means of cleansing and dressing wounds, may well have been of the earliest date. Some years since it was brought into popular favor again by a systematic treatment of Dr. ADOLPHE AMUSSAT, of Paris, who fully described its various uses and methods of application. The *temperature* of the fluid was the principal point about which surgeons disagreed. That recommended by AMUSSAT as the most preferable was about 60° Fahr., and the method of irrigation was the method which most surgeons found most available.

Later experiences have led several experienced observers, however, to reject cold water in favor of warm, and the method of irrigation in favor of immersion. Others have been guided by the general rule, which is that now laid down in various standard works of surgery, that the sensations of the patient are to be consulted, and that temperature chosen which feels most agreeable to him. (GROSS, ERICHSEN.)

Dr. J. E. GARRETSON, of Philadelphia, has formulated the rule that when the wound is followed by marked reaction with tendency to excessive vascular excitement, cold water is called for. It may be sufficient occasionally to wet the dressing, or it may require such refrigeration as is only to be secured by a constantly changing current. The process of reaction is to be closely watched, and the water with-

held, or elevated or depressed in temperature, to correspond with the demand for a greater or less antiphlogistic impression.

In another class of cases, where reaction is incomplete or absent, and where there is a present and increasing asthenia, a water dressing is still to be employed. It should, however, be neither cold nor warm, but about four or six degrees higher than the surrounding atmosphere, and it should be medicated with tincture of myrrh, or, what is better, the compound tincture of capsicum.

Dr. GARRETSON is convinced that the experience of the most judicious surgeons demonstrates beyond a doubt the superiority of water as a surgical dressing above all other applications; but it is by no means an innocent or inert agent, and its employment demands as much judgment and care "as are necessary in the administration of opium." Owing to a neglect of such necessary precautions, water dressing has at times been most severely censured and discountenanced, for its alleged tendency to prevent the healing process and lead to sloughing.

In favor of *warm water* dressing, as superior to cool or cold, the opinion of Dr. FRANK H. HAMILTON has already been quoted. (Page 20.) On the same side,

PROFESSOR N. B. CROSBY,

of the Bellevue Hospital, New York, says (*New York Medical Journal*, February, 1877,) that its undoubted success is due, first, to the exclusion of air; second, to the soothing effect of warmth and moisture; third, to the fact that the heat favors cell-infiltration; and finally, and perhaps most important of all, the changing of the water from time to time removes all septic matter, and thus prevents absorption of purulent and putrid elements.

An elevated temperature in the water proves a marked advantage when the vitality is low. The rule of lacerated and contused wounds is to slough to a greater or less extent. The separation of the slough is dependent on cell-infiltration or the formation of granulations, and this is retarded by cold and aided by heat, and the more rapidly this is brought about the more rapidly will adhesive inflammation be set up, and insure the immediate safety of the patient by plugging the capillary vessels and closing the lymphatics.

ALCOHOLIC DRESSINGS.

The employment of vinous or alcoholic liquids as surgical dressings dates back to remotest antiquity. One of the warmest living advocates of it is

DR. BORLÉE, PROFESSOR OF CLINICAL SURGERY, UNIVERSITY OF LIÉGE.

This surgeon prefers alcohol, simple or camphorated, to carbolic or salicylic acid, or any other of the vaunted antiseptics. (*Journal des Sciences Medicales de Louvain*, 1876.) The following is his customary method of employing it:

The liquid preferred is simple or camphorated alcohol of the temperature of 68° Fah. Having washed the wound carefully with this, he applies on the edges of the solution of continuity, if they are approximated, or between them, if they are not, tufts of charpie wet with the alcohol. Above these he places a compress and bandage, and then a piece of oiled silk, so as to prevent the evaporation of the alcohol and the dessiccation of the dressing. If the wound is large, the dressing should be renewed several times a day, the alcohol being somewhat diluted.

He considers that the alcohol favors immediate union, prevents excessive inflammatory action, aids in sustaining the vital powers, promotes healthy granulations, and moderates the suppuration.

PROFESSOR H. F. DOLBEAU, OF L'HÔPITAL BEAUJON, PARIS.

The bleeding having been staunched, the raw surface is washed with the strongest commercial alcohol, and then dried with some fine soft linen. The cavity caused by the loss of substance is filled up, and in the case of an amputation, the flaps are covered with feathery tufts of fine charpie saturated with alcohol. The entire dressings are then enclosed in an envelope of impermeable gutta-percha tissue, and retained in position by a few rounds of a bandage. During the day the gutta-percha is temporarily removed, and the underneath dressing moistened with alcohol. Next day, and on each following five or ten days, the entire dressings are renewed. The charpie adherent to the raw surface is carefully moistened with alcohol before removal, to pre-

vent any oozing of blood. At the end of eight or ten days, raw surfaces treated in this way are quite dry, and present a slate-gray color. This dried-up state may be indefinitely prolonged. To accomplish permanent healing it is necessary to induce suppuration in the wound. The idea of DOLBEAU is to maintain the alcoholic dryness (*secheresse alcoholique*) till all risk of traumatic fever is past, and till the patient sleeps and eats naturally, and has so gained strength. He then considers that the time has arrived for promoting suppuration with a view to cicatrization. Glycerine dressings are forthwith used. If the formation of pus is excessive, occasional alcoholic dressings are employed to moderate it. DOLBEAU maintains that by following the method now briefly described, traumatic fever is prevented, and the surgeon is enabled to arrest or diminish the suppuration of wounds at his pleasure.

DR. DAVID BLAIR, OF SCOTLAND.

In the *Glasgow Medical Journal*, Feb., 1870, this writer recommends the use of *whisky* as a surgical application. He washes the wound with the whisky, and then wraps it in rags saturated with the fluid, covering the whole with gutta-percha tissue or oiled silk. As a rule, the first dressing is not disturbed for three or four days, and afterwards every day or every second day. The principal thing to be attended to is to have the bandage kept wet with the whisky, but not *too* wet. He has never seen erysipelas follow in a wound thus treated, and suppuration has always been moderate. In treating *bed-sores*, he finds poultices mixed with whisky and whisky lotions of superior efficacy. In cases of chronic and scrofulous *abscess* he has used it as an injection, and found that it checked the discharge and hastened the cure.

Dr. HORVARTH has had an opportunity of testing the value of alcoholic application to burns on his own person, as well as upon others, and not only was all pain instantly allayed directly the part was immersed in cold alcohol, but it was found that the wound very speedily began to assume a more healthy appearance, the surrounding redness rapidly fading.

EARTH DRESSINGS.

The introduction of earth dressings in modern surgery is due to Dr. ADDINELL HEWSON, of Philadelphia. He takes clean, dry, well-sifted subsoil earth, and applies it liberally to the wounded part. The earth should be thoroughly dried in the sun, and all lumps and gravel sifted out of it. It is dusted over the wound in a layer varying from one-fourth of an inch to one and one-half inches, as occasion may require. It should be changed once, twice, or three times in the twenty-four hours, according to the discharges, as it should not be allowed to remain after these have moistened it.

The immediate effect of this dressing is cool and pleasant; it is one of the cheapest and most efficient deodorizers; it produces a marked absence of inflammatory redness around the wound; the granulations are healthy, and the discharge moderated. It has not been shown, however, that it exerts any hastening influence on the healing process.

In the Charity Hospital, New York, the method of employing the earth is first to bring the wound or ulcer into proper condition by means of nitrate of silver, or other agents indicated. When the surface is thus prepared, a number of grafts are inserted, and the whole covered by clay in the following manner: The dry clay is mixed up with olive oil to the consistence of a paste, and applied twice a day. The results obtained are highly satisfactory.

ANTISEPTIC DRESSINGS.

Since the degeneration of pus has been generally attributed to a septic or fermentative impulse imparted to it by the presence of organic germs derived from the circumambient atmosphere, the search for and application of modes and agents to prevent the access or destroy the vitality of these germs constitute a prominent feature in surgical therapeutics. Very different methods and agents have been resorted to for this purpose, the best known of which are those advocated by

PROFESSOR JOSEPH LISTER, OF EDINBURGH, (NOW LONDON.)

The apparatus required by this teacher is extensive, and his method full of minutiæ. The antiseptic agent he prefers is carbolic acid, which he employs as follows: A vessel is at hand with a solution of one to forty parts for the immersion of the hands of the operator, the instrument and sponges; a steam atomizer throws a spray of about the same strength over the part, etc., during the operation or dressing; carbolized catgut ligatures are used for ligating the arteries; carbolized gauze, fine gutta-percha tissue, india-rubber drainage tubes, and carbolated oil silk are employed for dressing.

With these at hand, he directs the surgeon to proceed as follows: (1) Shave the part, if there is much hair, in order that the antiseptic may not be prevented from acting upon the skin; (2) wash the part with a watery solution (1 to 20) to purify the skin; (3) direct the spray upon that part, and maintain its action and position during the entire operation and dressing, without a moment's interval; (4) immerse the hands, instruments and sponges in the 1 to 40 solution before operating, and at every interval of the operation, when they are not enveloped by the spray; (5) tie all vessels with antiseptic catgut, and cut the ligatures at the knot; (6) place the drainage tube or tubes so deeply in the wounds as to drain all accumulating fluids; if the tube enters obliquely, cut the outer extremity obliquely; lay the retaining threads on the surface; (7) if the wound is to be closed, as after amputation, use carbolized silk for sutures, as it is very superior to wire, not only on account of its perfect suppleness, but because its actively antiseptic character insures absence of putrefaction in the track of the wound; (8) if strapping is required, common adhesive plaster may be rendered antiseptic by dipping it for a second or two in a watery solution of the acid, and it is most convenient to have the lotion hot; the ends should be overlapped by the gauze; (9) apply to the cicatrizing part a layer of the oiled-silk protective, dipped in the watery solution, and having a hole for the drainage tube; (10) apply eight layers of the gauze, of such size as to cover all the wound and the adjacent parts; dip the first layer in the solution; between the last two layers place a piece of mackintosh of smaller size than the layers of gauze; apply the lower layer so as to cover in completely the mackintosh; (11) retain the dressings by bandages of the antiseptic gauze, over which elastic webbing may be applied when the bandage is not sufficient, as in wounds or abscesses of the groin. In-

spect the wound on the day after its infliction, whether it be accidental or the result of operation, and change the dressing only in case the discharge is liable to extend beyond the edge of the folded gauze; during the subsequent progress of the case, leave the gauze undisturbed for periods varying from two days to a week, according to the diminution of the effusion. In re-dressing continue the spray uninterruptedly on the part; while the bandage is being cut or removed, the patient, or an assistant, keeps his hand over the site of the wound, to prevent the dressing from rising *en masse*, and pumping in septic air; in raising the folded gauze, take care that the spray passes into the angle between it and the skin; remove the drainage tubes, cleanse them in the carbolic acid solution, and before re-introducing them cut off such portions as the granulations in the wound render necessary to bring the external extremity flush with the surface of the skin; lay aside the gauze which is soaked, but use the mackintosh again, after cleansing it with carbolic acid solution.

A very important part of Mr. LISTER's treatment is the provision he makes to secure a free escape from the wound or abscess cavity of all secretions. This he effects by the introduction of india-rubber drainage tubes of sufficient calibre, and provided with a sufficient number of lateral perforations to secure a ready escape of all fluids. Mr. LISTER has pointed out that under his system it is especially necessary to make this provision; for, when applied to fresh-cut surfaces, the carbolic acid, by its stimulating properties, excites an abundant secretion, which if retained within the wound cavity would be a serious source of danger; while in the treatment of abscesses the use of the drainage tubes is insisted on, to avoid tension of the abscess walls by accumulation of pus—tension being, according to Mr. LISTER's view, a most potent source of continued suppuration and constitutional irritation.

Mr. LISTER states that the spontaneous cure of caries under antiseptic treatment is a striking feature of the system, but in order that it may occur he considers it to be essential that the diseased part should be kept absolutely at rest—a condition that is difficult to secure in the treatment of some joints, but can readily be complied with in the case of spinal caries. Lumbar and psoas abscesses, which generally do badly after evacuation, are, according to Mr. LISTER, most hopeful subjects of treatment, provided that unremitting care be exercised to

maintain the antiseptic precautions till the sinuses are completely cicatrized.

In carrying out his antiseptic method in the treatment of wounds and abscesses, Mr. LISTER'S chief aims are: first, to exclude all germs of putrefaction; and secondly, to provide a free escape for all secretions. The first object is attained by cleansing from putrefactive germs the part to be operated on, the instruments and sponges employed, and the hands of those that use the instruments; by creating a germless atmosphere during the necessary exposure of the part; and by disinfecting all discharges coming from the part, lest putrefaction should occur in these, and from these spread to the wound itself.

The formulæ for the various antiseptic preparations of this eminent teacher are as follows:

Carbolized Oil:

54. ℞. Acidi carbolici crystalisati, ʒ j.
Olei lini, f.ʒ iv.
Dissolve.

Carbolized Putty:

55. ℞. Olei carbolati (above), f.ʒ iij.
Cretæ preparatæ, q. s.
To make a firm paste.

Antiseptic Lac Plaster:

56. ℞. Shellac, ʒ iij.
Acidi carbolici crystalisati, ʒ j.
Heat the lac, with one-third the acid, over a slow fire; when completely melted add the remainder, mix, strain and spread.

Antiseptic Gauze:

57. ℞. Paraffini, ʒ xvj.
Resinæ, ʒ iv.
Acidi carbolici crystalisati, ʒ j.
Melt together. Muslin gauze is dipped in the melted mass, and well wrung or pressed while hot.

Antiseptic Adhesive Plaster:

58. ℞. Acidi carbolici crystalisati, ʒ j.
Aquæ bullientis, f.ʒ viij. M.
Dip ordinary strapping in this, and let it dry.

59. ℞. Acidi boracici,
Ceræ albæ, āā ℥j.
Paraffini,
Olei amygdalæ dulcis, āā ℥ij.

Melt the wax and paraffin, stir in a warm mortar till the mass thickens, then cool, and reduce in a cold mortar to a soft ointment. Apply on fine rags to exposed ulcerous surfaces.

60. ℞. Plumbi oxidi, ℥iv.
Acidi carbolici, ℥vj.
Olei olivæ, f. ℥iv.
Ceræ, ℥j. M.

This plaster is to be prepared without water, and spread upon a thin cloth. To be applied as a dressing for wounds which need disinfection.

Professor LISTER employs *boracic acid* in two forms—*boracic lint*, a dressing material, almost non-stimulating, for wounds where the crystals of the antiseptic in the lint are only dissolved gradually by the discharges of the wound; and a *lotion* of boracic acid, (three to five per cent.,) partly for washing and partly as a spray. The antiseptic power is less than that of carbolic acid, and stimulates the tissues less, but, being non-volatile, it is not so evanescent. LISTER, therefore, prefers this substance for superficial wounds, such as those of plastic operations, in the treatment of ulcers, and, lastly, for the purpose of the healing of loose portions of skin on granulating surfaces.

In the case last mentioned the method is the following: After the sore is brought into an aseptic condition, it is carefully washed with boracic acid solution, then the pieces of skin to be transplanted are placed upon the surface of the granulations, under protection of the boracic spray. Without fixing specially the small portions of skin, a piece of protective is laid over the wound, after it has been dipped into boracic acid solution; upon this, a layer or two of boracic lint similarly treated; the whole fixed with a gauze bandage. As the discharge is scanty, the dressing may be left unchanged two, three or four days.

In regard to *chloride of zinc*, Professor LISTER employs a solution—forty grains to the ounce of water—and with the following indications.

1. For wounds which have been for a longer or shorter time exposed to the influence of atmospheric air, and in which a superficial putrefaction of the tissues has occurred, in order to be able, after the destruction of the products of putrefaction and the infected particles of the tissues, to regard the wounds as asceptic. To this class belong superficial surfaces of ulcers, with sloughing of granulations and stinking discharges.

2. Also for recent wounds, before putting on the first dressing, when the wound contains some focus of putrefaction, such as sinuses communicating with a joint subjected to excision. In such a case, the sinuses are also injected with the solution, in the hope of correcting the putrefaction of their contents, though the attainment of this is always uncertain.

3. He employs the *chloride of zinc* for recent wounds in the neighborhood of the different cavities of the body, and where the continual bathing of the wound with the putrid secretion of the cavity would render infection of the former possible.

Benzoated or *salicylated gauze* or *wadding* may be prepared by adding 3 to 4 parts of castor oil to the solution, for every 10 parts of benzoic acid; 100 grammes of benzoic acid and 40 grammes of castor oil (or 20 grammes each of castor oil and resin,) are dissolved in 2.36 liters (2360 cc.) of alcohol, the gauze soaked in the liquid and then dried. This gauze contains a 10 per cent. solution of benzoic acid. The salicylated gauze is prepared in the same manner.

Mr. E. W. EILAN writes to the *Maryland Medical Journal*, February, 1879, that Lister's bandages may be made thus:

60 a. ℞.	Boiled linseed oil,	℥ iv.
	Yellow wax,	℥ ij.
	Rosin,	℥ iv.
	Spts. turpentine,	℥ viij.
	Calvert's carb. acid, No. 2,	℥ j.

Melt the oil, wax and rosin together over a water-bath, and add the turpentine and carbolic acid. Then take a piece of tarlatan sixteen yards long by two yards wide, and immerse it in this menstruum, while still fluid. Then pass it through an ordinary clothes-wringer. Pass it through the wringer three or four times, or until no more of the mass can be squeezed through, then fold it and wrap it in oiled silk or carbolized paper, and preserve it in a tin box carefully excluded from the air, to prevent the evaporation of the carbolic acid.

The process above described will yield a material which is soft, pliable, and does not become sticky when brought in contact with the body.

Salicylic acid tampons, as employed in the German army, consist of pieces of soft gauze of about 13 or 16 square centimeters, which are loosely tied around 1 or 2 grammes of cotton, so as to be readily formed into any desired shape by pressure. One kilo of these tampons is impregnated with a solution of 110 grammes of salicylic acid and 40 grammes of castor oil or glycerine, in 3½ or 4 liters of 95 per cent. alcohol. They are afterwards dried in a well-ventilated room,

and are intended to be used in applying a temporary bandage until the services of a surgeon may be procured.

Salicylic acid has also been employed by Professor LISTER. He prefers it, however, only when the dressing is to remain on a long time. In this he is not followed by one of his German disciples, Professor THIERSCH, who uses it exclusively. It has also been extensively tried by

MR. CALLENDER, OF LONDON,

who reported his use of it in the *Medical Press and Circular*, November, 1875. The following were the formulas he employed:

61.	℞.	Sodii phosphatis,	ʒ iij.	
		Acidi salicylici,	ʒ j.	
		Aquæ,	f. ʒ vj.	M.
62.	℞.	Acidi salicylici,	ʒ j.	
		Aquæ,	f. ʒ vj.	M.
63.	℞.	Acidi salicylici,	ʒ j.	
		Sodii bicarbonatis,	ʒ ss.	
		Aquæ,	f. ʒ xii.	M.

The advantages of salicylic acid are that it is free from odor, and so far acceptable to the patients; that wounds heal under its influence, and, during the progress of the repair, are free from bad smells; that, unless strong with spirit, or but little diluted, it does not cause local pain. Its bad points seem to be these: that, above the strength of two per cent., it causes local irritation, with some constitutional disturbance; and if the patient has a delicate skin, even the weak preparation is a source of trouble; that there is more discharge from a wound dressed with salicylic than where carbolic acid is used; that its influence upon a recent wound, as after an operation, is not so efficacious against the occurrence of decomposition as that of carbolic acid, chloride of zinc or of boracic acid; that the repair of a wound is less active, and the granulations, if any, are more flabby than when other simple or antiseptic dressings are employed.

PROF. SPENCE, OF EDINBURGH.

This surgeon reports in the *Medical Times and Gazette*, April, 1876, very remarkable success with the *boracic acid* dressing, supported, no

doubt, by careful constitutional treatment. He discards as unnecessary the numerous and fastidious details of LISTER'S method.

The boracic solution is prepared by pouring boiling water upon the pure crystals of boracic acid, allowing it to stand in a covered vessel till it cools, and decanting the clear, adding more boiling water to dissolve any portion that remains. The acid is so sparingly soluble that there is not much fear of it being too strong. For use in dressings, say in an excision of the breast, the method is, after the wound has been thoroughly cleansed by pouring a stream of tepid carbolic lotion over the surface, and closed by sutures, two separate layers of lint which have been soaked in the solution, and wrung nearly dry, are laid over the line of incision and contiguous surface. At first the upper layer is occasionally removed, wetted, and re-applied, without moving the under layer next the wound, merely to keep that layer moist. Drainage-tubing is used to favor the escape of any blood or serous discharge, and to give an easy means of occasionally washing the wound gently out by means of a syringe. Unless there be bleeding, there is no need to disturb the deep dressing for twenty-four or even thirty-six hours. After the second day only a single bit of lint is used, covered with wax-paper. The sutures are generally removed about the fourth day, but, before doing so, strips of strong adhesive plaster are applied between the stitches, so as to maintain the edges of the wound in apposition, and these straps should not be removed unless they become loosened or dirty. In most cases he leaves the sutures long, merely twisting them so as, if bleeding occurs, to allow the wound to be re-opened and all clots washed out. The surface is then cleansed, the edges of the incision closed by the sutures, which are then cut short, and the dressing applied; thus re actionary oozing and its effects are guarded against, and primary union generally obtained. In regard to the comparative advantages of the boracic lotion or of the carbolized oil dressing, he prefers the former in cases of excision of tumors and joints, and in amputations when the soft tissues are healthy; but in cases of amputation or excisions of joints in which there are old sinuses and a diseased state of the skin, the oil dressings seem to meet the requirements of the case better, and are more easily applied and removed without causing pain. In using oil dressing, he applies a narrow strip of waxed paper over the line of incision as a protection from the irritating quality of the carbolized oil.

DR. SOULEZ, OF ROMORANTIN, FRANCE,

has advocated in *La Tribune Medicale* (Dec., 1876,) *carbolated camphor* as a dressing.

64. ℞.	Acidi carbolici crystal.,	grammes 9.
	Alcoholis,	grammes 1.
Mix, and add—		
	Pulv. camphoræ,	grammes 25.

The product is an oleaginous pale-yellow liquid, with a feeble odor of camphor, and no odor of carbolic acid at all. It does not mix with water or glycerine, but does mix with olive and almond oils. The infusion of saponaria (100 grm. or the leaves of soapwort to 1000 grm. water) emulsifies it, as does also the alcoholic tincture of *quillaria saponaria* (alcohol at 90°, 1 liter; Panama bark, 250 grm.) When mixed with an equal part of the carbolated camphor, this tincture produces a mother emulsion, which, when weakened with water, is used to prepare the antiseptic wadding.

In dressing a wound, Dr. SOULEZ covers it first with a square of wadding, which is impregnated with a mixture of carbolated camphor and olive oil. This must be large enough to extend 2½ to 3 inches beyond the wound. This is then covered by six other layers of wadding, impregnated with the emulsion above mentioned. Each layer should be one inch wider than the one below it. A thin envelope of caoutchouc is then applied to prevent evaporation, and over this a layer of dry wadding, and the whole is then secured by a bandage. The author claims that this dressing is very easy of application; all the materials can be prepared beforehand, and kept in well-covered jars. Before applying it the wound should always be washed with the emulsion of carbolated camphor. The dressing possesses all the advantages and none of the inconveniences of LISTER'S method. When applied to a stump, for instance, it keeps it enveloped in a warm atmosphere saturated with vapor of water, which lessens the exciting effects of the oxygen of the air, and is protected by the numerous layers of soft wadding, which keep out all infecting germs. Dr. SOULEZ renews the dressing usually every six days, but sometimes leaves it on for ten days.

DR. P. H. WATSON, OF EDINBURGH.

This gentleman, who is senior surgeon to the Royal Infirmary,

Edinburgh, has systematized the use of *chloral hydrate* as a dressing to wounds. He finds it quite as active as carbolic or boracic acid. At its first application it causes some smarting, which is soon succeeded by an agreeable, soothing sensation. It has a marked advantage over carbolic acid, on account of its pleasant odor. Dr. WATSON employs chloral in four forms:

1. A lotion of 5 to 40 per cent. in water, for cleansing away discharges around a wound, cleansing sponges used in operations, and analogous purposes.

2. An ointment composed of concrete paraffin, white wax (Scotch,) and almond oil, to which $^1/_{12}$ to $^1/_8$ of chloral is added, while the other ingredients are liquefied by heat. The components of the ointment should at once be rubbed together, covered, to prevent the evaporation of the choral, and cooled to a concrete form as rapidly as may be. It is afterwards rubbed up with a few drops of the solution of chloral, to disintegrate it, and prevent its crystalline form from being re-assumed. This ointment takes great pains to make efficiently. The ointment is applied spread into the substance of linen cloth, so as to be incorporated with the material. This dressing forms the immediate application to the surface around the wound, and covers in the wound itself. It does not adhere, but peels off like a thin layer of wax.

3. An external excipient dressing is made by soaking lint in a solution of chloral, (℥j–℥j.) It is then wrung out of this and carefully dried. Care is necessary to avoid long exposure or a high temperature, as this volatilizes the chloral.

4. Lint soaked in a solution of chloral in olive oil ($\frac{1}{8}$), employed to fill cavities, such as those left in some excisions, and to employ as compresses, when it is desired, to prevent bleeding from the cut surfaces in operations for the removal of *dead* bone.

In some cases, when the chloral appears to act as an irritant, even when carefully prepared, it may be necessary to interpose some impermeable material between the line of operation and the dressing.

He has never met with any disagreeable results from the absorption of the chloral. On the contrary, the pain of recent wounds is satisfactorily modified and relieved by its employment. (*Edinburgh Medical Journal*, Feb., 1876.)

PROF. POLLI, OF MILAN.

Observation shows sulphurous acid to be one of the most active anti-ferments known. The difficulty of employing it either as a gas or in solution led the late Dr. POLLI to adopt its combinations with earthy and alkaline bases, the *sulphites* and *hyposulphites* of lime, magnesia and soda. These retain the antiseptic powers of the acid, and may be employed externally and internally with facility. For external use the following formulæ are recommended by the Italian surgeons:

65. ℞. Sodii sulphitis, ℥ ijss.
Distilled elder water, ʒ iv.
Spiritûs camphoræ, ♏ xxx. M.

And

66. ℞. Sodii sulphitis, ℥ ijss.
Aquæ rosæ, ʒ iv.
Glycerinæ, ʒ j. M.

These lotions have been freely used on wounds and ulcers, burns, scalds, etc., especially where there is a purulent secretion, with, it is alleged, very gratifying success. They have also been employed as gargles when diphtheritic membranes are present, as lotions in cases of eczema, erythema, etc., as disinfectants for the lochia when offensive, and as urethral and vaginal injections in cases of purulent discharge.

The conclusions reached by Professor POLLI and those who have followed him in the use of these substances, are:

1st. That many diseases—the so-called *catalytic*—originate primarily in a fermentation of the principles of the blood.

2d. Sulphurous acid has the property of preventing and arresting the fermentation of animal and vegetable substances.

3d. The anti-fermentative properties of sulphurous acid are found in their most useful form in the alkaline and earthy sulphites, which are well borne by the system.

4th. To render the presence of the sulphites still more durable in the system, and to retard their conversion into sulphates, it is necessary to substitute for the sulphites the hyposulphites of the same base.

5th. The diseases in which the beneficial effects of the sulphites have been determined are affections that are characterized by a pathological ferment of some kind, malarial fevers, puerperal fevers, affections arising from the absorption of purulent matter, diphtheria, phthisis pulmonalis, during the period of softening, and during the breaking down of the tubercles, solution of continuity accompanied with acrid secretions, and severe wounds and varicose ulcers.

DR. JOHN BALFOUR, F. R. C. S., EDINBURGH.

Through the *Edinburgh Medical Journal*, 1874–6, this surgeon has several times stated his preference for the simple *sulphurous acid*, according to the following, as a most excellent antiseptic lotion:

67. ℞. Acidi sulphurosi, f.℥j.
Aquæ destillatæ, f.℥xij. M.

It at once alleviates pain, minimizes suppuration, is easily applied and facilitates dressing the wound, while it costs almost nothing. When the fingers are the parts injured, a large teacup is filled with the wash and put by the patient's side, and into this the injured part, covered with the thinnest rag to be had, is dipped as often as desired. Should the injured part be the hand, or any other part of the body, it is supported on a pillow covered with gutta-percha tissue or oil-skin, and the wash is applied by means of a little tow, which is allowed to remain in the cup.

In the Throat Hospital, London, as a stimulant and antiseptic gargle and local application, they use the following *aqua acidi sulphurosi:*

68. ℞. Acidi sulphurosi, ♏ l.
Aquæ destillatæ, f.℥x. M.

MR. JONATHAN HUTCHINSON, OF LONDON.

This able surgeon recommends (*The Lancet*, May, 1875,) the following plan of treating operation wounds as one eminently satisfactory, from the cooling and antiseptic properties of *lead lotions:*

No blood should be left in the wound, nor should there be any danger of bleeding. To this end, use all the silk ligatures that are necessary, and leave the wound open an hour or two, rather than close it while there is still oozing. A drainage tube left in the most dependent portion of the wound is a safe precaution. In the case of removal of the breast, make a counter-opening at the most dependent part, and insert a drainage tube, to be removed on the third day. Co-apt the edges of the wound carefully with numerous fine stitches. Great care should be taken that none of the latter are tight, and they should all be taken out on the third or fourth day. After the sutures, narrow strips of plaster should be applied, and remain on for five or

six days. The essential feature in the plan is to keep the parts cool by the systematic application of a lead-and-spirit lotion, as follows:

69. ℞. Liq. plumbi subac., ℥ ss.
Alcoholis, ʒ iss.
Aquæ, Oj. M.

After the wound has been sewed up, as above directed, apply over the plasters a lint compress wet with this lotion, and over this a mass of cotton-wool, which is kept in place pretty tightly by a flannel bandage. This is applied to prevent oozing, and should be taken quite away in from six to twelve hours, when an ample fold of lint, wet with the lotion, should be applied over the wound and surrounding skin, and the nurse should have emphatic directions to remoisten it every quarter or half hour, according to the rate at which it dries. The skin ought to become whitened by deposit of lead. No bandage or other dressing is necessary, and the lotion should be continued without intermission until the wound is perfectly sound—a week, or two weeks, as the case may be.

If one is obliged to leave a portion of the wound open, the lotion may still be used, and is even more necessary.

Another surgeon, Dr. JAMES LAWRIE, of Glasgow, commenting on this plan, (*Lancet*, July 10th, 1875,) prefers the following solution:

70. ℞. Plumbi acetatis, gr. x-xx.
Aquæ calcis,
Aquæ, āā f.℥ ss. M.

This he uses as a dressing to wounds, burns, ulcers, etc. There is no danger of lead-poisoning, and it brings about rapid subsidence of pain and prompt healing.

Terebene is an aromatic hydrocarbon, with marked deodorant and disinfectant powers. It has been largely used as a dressing by

MR. H. C. WADDY, M. R. C. S., ENGLAND,

Surgeon to the Gloucester County Infirmary. His use of it in amputation wounds, for instance, is as follows: Bleeding having been stopped by torsion of vessels, the wound is washed with terebene and water.

71. ℞. Terebene, f.℥ j.
Water, Oj.
Shake well together.

All bone-dust and blood-clot being removed, and the skin of the limb cleansed, pure terebene is poured freely over the surfaces of the wound, and all crevices filled with it. The limb is placed on a common wooden back splint, with foot-piece properly padded, and strips of strapping fix the thigh, leg and foot to the splint.

The edges of the wound are adapted with the fingers, and strips of lint soaked in terebene (pure) are passed tightly round the limb to maintain them in apposition, plenty of terebene being poured between the surfaces of the wound. No ligatures or sutures are used.

Cotton wool is applied outside the lint, enveloping the entire limb from toe to groin, and a bandage soaked in terebene outside the wool. The nurse is instructed to keep the outside bandage soaked in terebene a small quantity dropped two or three times daily upon it sufficing for the purpose.

A wound thus dressed may be left for weeks without a bandage or pin being removed. Before removal of the dressing, it should be well soaked with terebene for three or four hours. This is done by slowly dropping the terebene all over the surface of the bandage. It is then removed carefully, layer after layer being divided with the scissors, and fresh terebene is poured on to moisten any parts which have become matted together, when they easily separate. If the terebene be frequently applied, there is no unpleasant odor.

Of the numerous other dressings which depend largely for their virtues on the antiseptic principle, the following formulæ give abundant room for selection:

DR. MINNICH, OF VENICE.

72. ℞. Sodii sulphitis, ℥j.
Glycerinæ, f.℥j.
Aquæ destillatæ, f.℥ix. M.

As a lotion for dressing wounds and in erysipelas.

DR. ROCCO GRITTI, OF MILAN.

73. ℞. Sodii sulphitis, ℥ijss.
Amyli pulveris, ℥ij.
Glycerinæ, f.℥ijss.

Mix and warm in a water-bath until the preparation shall have acquired the consistence of a soft cake. Used to disinfect wounds, diminish the secretion of pus, and stimulate cicatrization.

MR. THOMAS KIRKLAND, LONDON.

74. ℞. Tincturæ myrrhæ,
Liquor calcis, āā f.℥ ij. M.
As a lotion in unhealthy wounds.

75. ℞. Extracti cinchonæ, ℈ iv.
Adipis, ℥ x. M.
To be applied by means of charpie to gangrenous wounds. Internally, preparations of cinchona and a tonic regimen.

PROF. DEMARQUAY, PARIS.

76. ℞. Potassii permanganatis,
Calcii carbonatis pulveris,
Amyli pulveris, āā ℥ j. M.
A painless dressing for fetid wounds.

77. ℞. Potassii permanganatis, gr. xv.
Aquæ destillatæ, ♎ ij. M.
A wash for infected wounds.

DR. ADOLPH ADRIAN, OF GIESSEN.

78. ℞. Picis liquidæ, ℥ iss.
Ovi vitelli, ℥ ijss.
Aquæ, f.℥ xij. M.
This mixture may be diluted with water, and serve to inject and wash the surface of wounds.

79. ℞. Picis liquidæ,
Ovi vitelli, āā ℥ ijss.
Glycerinæ, f.℥ v. M.
This preparation, which has the consistence of an ointment, does not adhere to the skin like the ordinary tar ointment. It may be diluted with water, and employed for the dressing of gangrenous wounds and rebellious ulcers.

DR. LEMAIRE, PARIS.

80. ℞. Alcoholis,
Acidi carbolici crystalisati, āā q. s.
Apply locally in poisoned wounds, small-pox pustules, etc.

81. ℞. Olei olivæ, f.℥ vij.
Acidi carbolici crystalisati ℥ j. M.
Use as an antiseptic liniment.

DR. LEONARD CANE, LONDON.

82. ℞. Acidi boracici,
Aquæ bullientis, q. s. ad saturandum.
This may be used as a lotion, with lint, cotton-wool, etc.

DR. LEWIS D. MASON, BROOKLYN.

Carbolated Bran.—Add crude carbolic acid slowly, stirring at the same time, until it is an adherent mass. Used as a "germ-proof" dressing.

Carbolated Earth is made by adding two parts of crude carbolic acid to 100 parts of dry, sifted earth.

PROF. VERNEUIL, OF PARIS,

advocates *antiseptic baths* prolonged for several hours and repeated as necessary. In preparing these baths he uses either solutions of chloride of soda, carbolic acid, or hydrate of chloral; one to two per cent. of carbolic acid is sufficient. In the intervals of the baths the limb or other part is wet with compresses soaked in the liquid of the bath. Of the value of this treatment Prof. V. says: "It is of great utility in a great number of surgical affections of the hand, forearm and elbow. It prevents traumatic fever almost certainly in cases of recent accidental or operative wounds seated in healthy tissue, and in this respect rivals the classical continuous irrigation and the wadding dressing. It possesses the same preventive property in cases of operations practiced in the midst of more or less old morbid centres (*foyers*) impregnated with purulent and putrid substances, and thus renders more innocent excisions and extirpations of bones, amputations in gangrene, drainage, counter-openings, &c. In this respect it is very superior to rival modes of dressing. Finally, it possesses still more than these the inestimable power of arresting acute or chronic septicæmia."

M. MAGNIS-LAHENS, OF TOULOUSE,

adds *charcoal* to *coal-tar*, (33 per cent. of the latter,) and thus obtains a light and porous powder, which does not irritate wounds, and which is easily washed off with cold water. This combination is a very useful mixture of two antiseptic substances. The charcoal absorbs the gases formed by fermentation, coagulates the albumen, and prevents its decomposition, thus effectually assisting the carbolic acid contained in the coal-tar.

PROFESSOR E. H. BENNETT, OF DUBLIN.

This surgeon urges the advantages of a combination of *carbolic* and

salicylic acids in dressings. (*Medical Press and Circular*, March, 1876.)

His experience has been that the salicylic acid dressings do not exert so marked an influence in controlling suppuration as carbolic acid, which is in a great measure due to the fact that it is non-volatile, and so does not penetrate the depth of wounds. It wants, too, the advantages that arise from the stimulating action of the carbolic acid, and so wounds progress rather more slowly under its action.

The spray of salicylic acid, though entirely odorless, is quite unfit for general use, as no one can resist a constant tendency to sneeze while exposed to it.

He has obtained a great number of completely successful results with salicylic acid alone, and does not hesitate to use it by itself in many cases—for instance, in the treatment of burns.

The salicylic dressing he has found most convenient is that recommended by THIERSCH, made by saturating jute with the acid, 3 per cent. by weight, adding a little glycerine, 4 ʒ–℥b., which prevents the drying of the jute. He thinks great advantage attaches to the moist condition of the dressing; it is ready to absorb moisture, and if air be drawn through it, as in wounds affected by respiration, the moist threads serve, he is confident, as better filters than dry ones would. The advantage of addition of glycerine, according to THIERSCH, is that it prevents the dry acid from flying off in dust from the jute.

Nothing can be easier made or more readily applied than the jute dressing. He applies it beneath a few folds—generally three—of gauze, containing sheet gutta-percha, directly on the wound, except in cases where the support of a bandage is required directly on the flaps, etc. This mode of application, made under the carbolic spray, combines both acids, and the application of the jute next the wound prevents the irritation often felt from the gauze rubbing the skin.

RÉSUMÉ OF REMEDIES.

Alcohol, as an efficient antizymotic and stimulant, has been largely used as a dressing. (See above, p. 77.) Most of the tinctures used as vulneraries owe their value to the alcohol they contain.

A formula much used by Prof. JOSEPH PANCOAST, of Philadelphia, is:

83. ℞. Castile soap, ʒj.
Bicarb. potass., ʒij.
Alcohol, ʒiv. M.

Apply with pledgets of lint.

Aloes, in powder, dusted on smaller lacerated wounds, forms a stimulant dressing, by occlusion, highly praised by some French surgeons.

Alumen, in the following formula, is used by Prof. LISTER as an application to ill-smelling and pustulating wounds:

84. ℞. Aluminis, ℥ss.
Plumbi acetatis, ʒj.
Aquæ, Oj.
For a lotion.

Aluminii Chloridum, or chloralum, is a powerful antiseptic deodorizer; not poisonous, and particularly serviceable in wounds with foul discharges.

Aqua. The oldest, simplest, and, in some cases, the best of dressings is pure water, of proper temperature. (See page 75.)

Aqua Chlorinii in its concentrated form (one part to ten.) It is rather painful, and when diluted its application must be frequently renewed.

Balsamum Peruvianum is a most excellent application to wounds. Dr. MARTIN BURKE, of New York, finds the following combination unsurpassed for foul sinuses, old ulcers, badly lacerated tissues, etc.:

85. ℞. Acidi carbolici, ʒj.
Aquæ, f.ʒj.
Balsami Peruviani, f.ʒiv.
To be well beaten up. Apply on picked oakum after carefully cleaning the wound. (*Medical and Surgical Reporter*, Feb., 1877.)

Balsamum Tolutanum. A German surgeon, Dr. E. WISS, of Berlin, has recently expressed himself in almost unbounded praise of balsam of tolu as an application to wounds of all kinds. When the balsam was put upon wounds, it produced an immediate sensation of burning, which, however, very soon ceased, as did all pain, even in most severe wounds. Fresh wounds under this treatment showed no inflammation, and in those already inflamed it soon ceased. No suppuration took place, and where it was already present it soon disappeared. No wound treated by him by this method took on a septic character, even under the most unfavorable local and climacteric surroundings. In all cases, even in lacerated wounds, there was union by first intention, a thing which had not been his experience in any other method of treatment. (*Berliner Klin. Wochenschrift*, 1876 and 1879.)

Benzoin. Recent observation has shown that benzoic acid has decidedly antiseptic properties. The compound tincture of benzoin has been employed very successfully as a dressing to recent wounds. It is similar to the once celebrated "Friar's Balsam." Pure tincture of benzoin, applied on lint, is an admirable primary dressing.

Boracicum Acidum has been recently introduced and very favorably reported upon. (See pages 83, 86.)

Bryonia. Tincture of bryony is a favorite application among pugilists for the bruises, cuts and contusions they receive in their encounters. It seems little known as a local application to the profession, while its acknowledged powerfully stimulating properties, both to the skin and mucous membrane, recommend it as probably very efficacious in such wounds.

Calcii Iodas. The iodate of calcium has been employed with very excellent results as an antiseptic by Mr. S. W. MOORE, of London. (*St. George's Hospital Reports*, 1875.) He applies it in the following proportion to foul ulcers, cancers, purulent abscesses, etc.:

86. ℞. Calcii iodatis, ℥ss.
Farinæ pulveris, ʒj. M.
For external use.

He also derived much benefit from its internal administration, grs. j–ij, thrice daily.

Calendula Officinalis. A tincture of this indigenous plant, diluted two parts with water, has been recently extolled by Dr. G. H. CHAPMAN, of Illinois, (*Michigan Medical News*, November, 1878,) as possessing antiseptic and curative properties of a remarkable kind.

Camphora has been employed, both powdered over the wound and mixed with carbolic acid, etc. (F. 64.) It is only slightly soluble in water, and is not a deodorizer.

Carbo Vegetalis. Wood charcoal is a convenient and powerful antiseptic application. It may be used as poultice (p. 38,) or mixed with other substances (p. 94,) or applied as powder.

Carbolicum Acidum is the leading antiseptic with most surgeons. (See above.) In the opinion of many, however, it is in no way superior to many others. Its odor is offensive to most patients, and when dissolved in oil it ruins the dressing and bedding. It is also poisonous, and in operations under chloroform is said to increase the dangers of the latter by rendering the air less respirable. Much of the success which has followed its use in the hands of LISTER and his disciples is said by others to be attributable to the unusual cleanliness and care he enjoins.

Chloral has been used extensively as an outward application for the relief of pain, and as an antiseptic for the dressing of wounds. (See page 88.)

Chlor-Alcohol. Under this name Dr. E. HERMANT, of Brussels, has introduced a mixture of equal parts of chloride of lime and tincture of camphor, which he recommends as an antiseptic, detersive and cicatrizant.

Chlorinium. As a powerful oxydizing disinfectant and local stimulant, the use of dilute aqua chlorinii has some advantages.

87. ℞. Aquæ chlorinii, f.℥ss–j.
Aquæ, ℥j. M.
Use as a lotion.

It must be remembered that chlorine water is a powerful irritant, capable of producing severe inflammation of the skin. The *liquor sodæ chlorinatæ* is a more appropriate preparation for dressings, and has been employed with great satisfaction in unhealthy wounds.

Collodion is used to bind together the edges of clean-cut wounds, to exclude the air. It is unfortunately liable to crack. (For RICHARDSON'S styptic collodion, see the Index.)

Creosote in solution is a powerful antiseptic stimulant. Dr. SQUIBB believes that

both for disinfection and local application, no preparation is better than the ordinary creosote of the shops (a mixture of phenol, cresol, xylol, and perhaps one or two others of the series, the cresol predominating), which has also the advantage of being much cheaper. Simple watery solutions of creasote, sufficiently dilute, applied on old linen or muslin, he believes will serve every purpose of Mr. LISTER'S putties and plasters. For burns, both to allay the pain and to promote healing, nothing compares with such a solution, containing about one-half of one per cent. of creosote. If much stronger it not only fails to relieve, but intensifies the pain.

Ferri Salicylas. This preparation is made by adding salicylate of soda to a saturated solution of sulphate of iron. It is of a bright claret color, with no smell, not irritant, and strongly antiseptic. It has been recommended by Dr. ROBERT KIRK, of Edinburgh, as an application to foul ulcers, &c. He applies lint soaked in the solution, and covers with gutta-percha tissue. (*Edinburgh Medical Journal*, Feb., 1877.)

Ferri Sulphas. For dressing wounds, when there is much discharge and fetor, a solution of this salt, ʒj to aquæ O j–ij, will be found very effective. It is a very good disinfectant, and in these cases diminishes the odor better than carbolic abid, for it has no disagreeable smell of its own; it also dries up the excessive discharge in a prompt manner; it hastens the granulating and cicatrizing processes, which are apt to be retarded by the profuse discharge. The lotion gives rise to some smarting when first applied, but this soon passes away, and so much is the general comfort of the patient promoted, that this soon comes to be disregarded even by children; it should be applied on cloths well wetted, and renewed every two or three hours; it is well to protect the bed-clothes, for the stain is well-nigh indelible.

Glycerina is a useful and cleanly dressing. It should be diluted by one-half of oil, alcohol or water, as if applied pure it causes painful smarting.

Gutta-percha dissolved in oil of turpentine or chloroform is an excellent application for keeping the edges of wounds together.

Hæmatoxylon. Logwood is an excellent disinfectant and antiseptic when applied to suppurating and offensive wounds. The powdered extract may be used, or it may be dissolved in a lotion. The following is recommended by Dr. TANNER:

88. ℞. Extracti hæmatoxyli, ʒj
Olei theobromæ,
Adipis benzoati, āā ʒss. M.
To be spread on old linen for a dressing.

Hamamelis. The tincture of witch-hazel has much reputation as an application to wounds. Its virtues are owing to the alcohol and the tannin of the plant.

Hydrargyri Chloridum Corrosivum. Corrosive sublimate is a powerful antizymotic, ranking, according to the experiments of Dr. P. GRACE CALVERT, next in efficiency to carbolic and cresylic acids. In very dilute solution, is an excellent stimulating and antiseptic application to wounds:

89. ℞. Hydrargyri chloridi corrosivi, gr. ss–j.
Aquæ. Oj.
For a lotion.

Iodinium. As an antiseptic and healing application to wounds, a weak solution of iodine has been used, gr. j-ij to the ounce of water; to this some tannic acid may be added, forming a weak *iodo-tannin*, which will be found very efficient. The objection to it is that the applications must be frequently renewed, and if too strong, are likely to cause acute inflammation.

Oleum Olivæ. Some surgeons use the best olive oil as an application to wounds in preference to water, as being more soothing, less heating, and less prone to promote decomposition. (ERICHSEN.)

Petroleum, both crude and refined, has been used as a dressing. It is not irritating, or very slightly so, to cut surfaces, and is antiseptic and stimulating. It may be used pure, or diluted with equal parts of olive oil or glycerine. *Unguentum petrolei* is highly esteemed.

Picricum Acidum. M. EUGENE CURIE recommended picric acid in a watery solution, with which the dressings are saturated, or, better still, picrated wadding, that is to say, pieces of dry wadding in which picric acid has been incorporated; the last method is generally the most convenient in application. This method, according to the author, affords the advantage of completely suppressing suppuration.

Piz Liquida. Tar is an extremely useful and cheap dressing for wounds. Recently Dr. C. B. LEITNER, of Georgia, has praised the use of *tar bandages.* (*Trans. State Soc., Georgia*, 1878.) He puts fresh pine tar in a glass vessel, and places the vessel in a pot containing water; after the water has boiled for a half hour, the vessel containing the tar is set aside until all the foreign matter is precipitated; then decant, leaving the foreign matter at the bottom; finally, add one part of sweet oil to twenty parts of the tar. After the roller bandage is adjusted, in amputations, this ointment should be thoroughly applied, once in four or five days being sufficient. In wounds, cloth strips can be used as one would use adhesive strips. Change of dressing is not necessary, and flies will not approach the wound.

Plumbi Acetas. Solutions of the acetate and subacetate of lead (Goulard's extract,) are widely and justly popular as astringent and sedative dressings for wounds. (See pages 90, 91.) Although chemically incompatible, it is frequently combined advantageously with opium. For use on the skin, the strength should not be greater than gr. x to aquæ f.℥j. Even in weak solution the subacetate destroys bacteria, but it is not a good deodorizer.

Plumbi Nitras, as an application to foul wounds and excoriated surfaces, is highly esteemed. A solution of it, f.℥j to ℥j, is known as *Ledoyen's Disinfectant Solution.* A convenient strength is gr. x to aquæ f.℥j; or it may be prepared extemporaneously by dissolving a scruple of carbonate of lead in sufficient diluted nitric acid for solution, and adding a pint of distilled water.

Potassii Permanganas. This salt, in solutions of gr. j–xx to the ounce, has been very highly praised as a dressing by some surgeons, but is very lightly esteemed by others. It is, at least, an effective deodorant, and except that it stains the bedding, etc., an elegant application. The solution should be made only of such strength that it can be borne without any pain or uneasiness. The discoloration it causes may be removed by sulphate of iron.

Salicylicum Acidum has recently been prominently urged by Mr. CALLENDER. (F. 61.) It is probably less active than carbolic acid.

Styrone. This antiseptic is obtained by heating styracin or cinnyl cuniamate (a compound contained in liquid storax and in balsam of Peru) with caustic alkalies. It crystallizes in soft, silky needles, having a sweet taste and an odor of hyacinths, melting at 33° Fahr., and volatilizing without decomposition at a higher temperature. It is moderately soluble in water, (about 1 part to 12,) freely in alcohol and ether. Dr. BEACH tested the efficiency of the antiseptic by applying it (1 part to 12 of water) to a foul, ulcerated surface, with the effect of completely deodorizing it. The same surface was dressed with sheet lint saturated with an emulsion of the styrone and olive oil, 1 part of the former to 12 of the latter, covered with thin gutta-percha, and the edges of the gutta-percha fastened to the skin by collodion. At the end of five days the dressing was removed, and the accumulated secretions were found sweet, and having the odor of the styrone, which is fragrant. This dressing was repeated at different intervals, with a like result. The granulating process progressed as well as if it were under a carbolized or thymolized dressing. (*Boston Medical and Surgical Journal*, March, 1880.)

Sulphites and Hyposulphites. These have been urgently advocated for the medication of dressings by Drs. POLLI and PIETRASANTA. (F. 65.)

Sulphocarbolates. These salts of zinc and copper have been employed in solution (gr. iij-v to aquæ ℥ j) by Prof. JOHN WOOD and others.

Sulphurosum Acidum has claims on the surgeon which should not be overlooked. (See page 90.) A strong aqueous solution may be made and mixed with water, (℥ ss to O j,) or, what is better, with alcohol, as required.

Tannicum Acidum. Tannin and substances containing it precipitate albumen, and thus coat wounds, thus protecting them from the irritating action of the air and the "germs" it may contain. It is conveniently employed in the form of a glycerite of tannin. Most of the herbs and plants with popular reputation as vulneraries owe their claims to the tannin they contain.

Terebene. See page 91.

Terebinthina Canadensis. Balsam of fir has long been a popular domestic application to wounds. The following compound is highly praised as an application by Dr. A. C. MACKENZIE. (*American Journal of the Medical Sciences*, 1875.)

90. ℞. Terebinthinæ canadensis,
Terebinthinæ veneti,
Olei amygdalæ dulcis, āā f. ℥ ij.

To this add.

Acidi carbolici, f. ℥ ss.
Glycerinæ, f. ℥ ij.

Apply with a flat camel's-hair brush, and inject into the interstices of the wound with a glass syringe, having previously cleansed the wound with very warm water. The injured part should then be swathed in flannel, wrung out in water as hot as can be comfortably borne.

Thymol is preferred by some surgeons to carbolic acid. Prof. RANKE (*Sammlung Klin. Vorträge*, No. 128,) uses:

91. ℞. Thymol, 1 gramme.
Alcohol, 10 "
Glycerine, 20 "
Water, 1000 " M.

This makes a clear solution of agreeable odor. It is used the same as carbolic acid.

Tinctura Opii Camphorata, with equal parts of simple syrup, is recommended by Dr. Q. C. SMITH. (*Nashville Journal of Medicine and Surgery*, June, 1879.) Flies will not approach the wound, and it heals rapidly.

Zinci Chloridum. A powerful antiseptic and stimulant. In exsection or amputation of cancerous or other ill-conditioned parts, Mr. C. DE MORGAN recommends to mop the wound thoroughly with a solution ℈j–ij to aquæ f.℥j (the weaker is generally strong enough.) As an antiseptic and stimulating dressing, gr. v–x to aquæ Oj is exceedingly useful. Sir W. BURNETT's disinfecting fluid consists of gr. xxv of this salt to aquæ f.℥j; for use, about one ounce of this solution is added to a quart of water.

IV. THE COMPLICATIONS OF WOUNDS.

Erysipelas—Gangrene—Hemorrhage—Phagedæna—Pyemia—Shock—Tetanus—Traumatic Fever—Traumatic Neuralgia and Paralysis.

ERYSIPELAS.

MR. T. HOLMES.

The depletory treatment of erysipelas is almost abandoned. In the plethoric and strong, after the bowels have been freely opened by a mercurial purge, salines with small doses of antimony, and light fluid diet without stimulants, should be ordered. In the cellulo-cutaneous form after injuries, the purge should be employed, but an early resort to free stimulation is demanded. When there is much nervous excitement, opium should be carefully administered; but as a rule, opiates are to be avoided in erysipelas, except in the phlegmonous form after injuries. Camphor, ammonia and light tonics, generally act beneficially after the bowels have been regulated. The free exhibition of the tincture of the perchloride of iron is very beneficial in many cases; gtt. xv–xx every three hours must be given in order to produce its specific effect; and it will not agree if the tongue is foul, and the general fever is rising. Salines with small doses of antimony should be prescribed in that condition, and the iron resumed subsequently.

Locally, the exclusion of the air from the inflamed surface is very grateful. An ointment of calamine or of lead may be used for this purpose; or the part is defended by a layer of cotton wool, or some bland, warm lotion is used, as dilute solution of the subacetate of lead with opium, or a solution of the sulphate of iron.

92. ℞. Ferri sulphatis, ℥j.
Aquæ, ℥j. M.

Or,

93. ℞. Tinct. ferri chloridi, f.℥ij.
Aquæ, f.℥viij. M.

Incisions ought to be made freely and boldly into the cellular tissue, when the inflammation is high, the tension great, and gangrene threatening. A good proof of their necessity, and a good augury for their beneficial influence, is the free gaping of each cut as it is made. Many surgeons speak favorably of multiple punctures with a lancet, as a substitute for incisions, but they often fail to furnish adequate relief. When, as a result of the disease, there remain stiffness and loss of motion of the muscles and joints, diligent passive motion must be employed, the parts must be well steamed, and the patient encouraged to use them.

DR. J. E. GARRETSON, OF PHILADELPHIA.

This writer (*Medical and Surgical Reporter*, July, 1870,) states that for a number of years he had met with no case of erysipelas which did not yield to the local application of a combination of iron and bark, which he regarded as a natural specific. The combination, as usually prescribed, was the following:

94. ℞. Tinct. ferri chloridi,
Tinct. cinchonæ, āā f. ʒ ij.
Quiniæ sulphatis, grs. xxx.
Aquæ, f. ℥ iss. M.
Apply, by means of a camel's-hair brush, four times a day.

This is equally available in both the cutaneous and phlegmonous varieties:

MR. ERASMUS WILSON, OF LONDON.

95. ℞. Hydrargyri chloridi mitis, grs. ij.
Extracti colocynth. comp., grs. vj.
Extracti hyoscyami, grs. ij M.
For one dose.

This is given at the outset of the disease, followed, after the lapse of twelve hours, with a senna or rhubarb draught. A mild aperient must be given daily. If the fever run high, effervescent salines with ammonia. When the alimentary canal is pronounced to be free, *sulphate of quinine*, with sulphate of magnesia, may be administered, to be followed by the tincture of the *perchloride of iron*, which is declared to be specific. Sedatives are valuable when great irritability prevails; an eighth of a grain of the extract of belladonna may be given every

six or twelve hours. Milk diet, with farinaceous puddings, then eggs, then broths, next fish, and afterwards poultry. For drinks, toast water and barley-water, to which may be added wine, with a view to support the vital powers. The *local* palliative treatment should consist of sedative fomentations, dredging with flour, and inunction with lard; the *curative* treatment is attained by penciling the surface with a solution of *nitrate of silver*.

J. MILNER FOTHERGILL, LONDON.

This author maintains that true erysipelas is a totally different affair from that form of dermatitis which follows injuries to the skin. The true form is that often seen in erysipelas of the head and neck. In such erysipelas, tonics, stimulants and half-drachm doses of the tincture of *perchloride of iron* every four hours, together with milk and nutritive food, form the best line of treatment. As external applications, he prefers flour, oxide of zinc, cotton-wool, or warm solutions of acetate of lead and opium. The traumatic form should be treated by cooling medicines, and applications of lead and opium, or by applying the solid nitrate of silver around the blush, which often arrests its spread.

In phlegmonous erysipelas, the most active stimulant and tonic measures are demanded, together with strict antiseptic treatment, and free evacuation of the deposits of pus. Sometimes the pronounced asthenia may be successfully combated by a resort to *digitalis*, in addition to the measures just mentioned.

DR. F. L. SATTERLEE, OF NEW YORK.

The following is the treatment used by this practitioner, with the best effect. (*N. Y. Med. Jour.*, Dec., 1875):

℞.	Quiniæ sulphatis,	gr. xxv–xxx.	
	Acidi sulphurici diluti,	gtt. v.	
	Opii elixir (McMunn),	♏ xv.	
	Aquæ,	f. ℥ iss.	M.

For one dose on retiring at night.

If the stomach is irritable, put a mustard plaster under the left breast for ten or fifteen minutes before giving the dose; or administer it by enema. After this draft, the patient usually sleeps well and perspires freely, the eruption diminishes and the disease abates. If there

is biliousness, free draughts of lemonade; if constipation, a simple cathartic is called for. No local application is necessary. In severe cases, not seen early, the dose may require to be repeated a second or even a third night.

DR. A. H. HYATT, OF CHICAGO.

This physician has found *iodide of potassium* of great value in erysipelas, (*Chicago Med. Jour.*, Oct., 1873,) especially in severe phlegmonous cases. When called to a case he prescribes:

97. ℞.	Potassii iodidi,		ʒj.	
	Aquæ,			
	Syrupi simplicis,	āā	f.ʒj.	
	Ess. gaultheriæ,		f.ʒss.	M.

A teaspoonful in water every two hours.

When the violence of the disease is subdued, a less quantity is given. If the bowels are constipated and tongue brown, a mercurial laxative is indicated. If there is prostration, quiniæ sulphas, gr. ij every five hours, with whisky and animal broths, is called for.

As an external application:

98. ℞.	Plumbi acetatis,		ʒj.	
	Glycerinæ,			
	Aquæ,	āā	f.ʒj.	M.

Keep the parts moist with this.

Twenty-four to forty-eight hours are usually sufficient to subdue the disease, and four or five days to complete the cure.

DR. WILHELM ZUELZER, CHARITÉ HOSPITAL, BERLIN.

This observer believes no specific treatment for erysipelas has been established. For the rational treatment for the more serious forms, the mineral acids may be used, and quinine in full doses:

99. ℞.	Quiniæ sulphatis,	ʒj.	
	Acidi sulphurici diluti,	f.ʒij.	
	Aquæ,	f.ʒiij.	M.

A dessertspoonful three times a day.

Cold baths, several times a day, are a valuable means to reduce the temperature, especially in protracted cases. Violent cerebral symp-

toms must be met by cold applications to the head, and by active purgatives. When œdema of the glottis is threatened, the inhalation of solutions of tannin and alum is called for, and the energetic use of cold, by the administration of small pieces of ice and by ice-bags to the throat. Local treatment may be limited to sprinkling with powdered starch and covering with wadding. To exert a mild compression, the skin may be painted daily with:

100. ℞. Collodion, f.℥i.
Glycerinæ, f.℥ij. M.

Great tension of the skin may be relieved by warm poultices or by superficial punctures. In violent inflammation, ice-bags and ice-water compresses are indicated.

MR. JOHN HIGGINBOTTOM, LONDON.

This surgeon maintains (*Practitioner*, January, 1869,) after forty years' experience, that no agent is so safe, powerful and efficacious as the *nitrate of silver*. The affected part should be well washed with soap and water, then with water alone, to remove every particle of soap, which would decompose the nitrate, and then be wiped dry with a soft towel. He employs the following solution:

101. ℞. Argenti nitratis, ℈iv.
Aquæ, f.℥ss. M.

This should be applied two or three times carefully over the affected surface and beyond, on the healthy skin, to the extent of two or three inches, by means of a piece of clean linen attached to the end of a short stick. In the course of twelve hours it will be seen whether the solution has been well applied; if any part of the inflamed surface be found unaffected, the application must be repeated. By applying the nitrate so as to encircle the inflamed part, the extension of the disease may be sometimes arrested. Iodine (see below) is preferred by some physicians.

DR. RUSSELL REYNOLDS, LONDON.

Several preparations of *iron* have been supposed by various surgeons to exert a specific effect on erysipelas. VELPEAU used the sul-

phate; but the most popular has been the chloride of iron. Dr. RUSSELL REYNOLDS advises the following formula:

102. ℞. Tincturæ ferri chloridi,
Spiritûs chloroformi,
Glycerinæ, āā f.℥j.
Aquæ, f.℥iij. M.
One tablespoonful in a wineglassful of water every four hours.

So soon as the first effects of this medicine, which are often seen after the second dose (*i. e.*, the local inflammation ceasing to extend, the inflamed part becoming paler, less tender, less swollen, the feeling of exhaustion diminishing, and with it the exaggerated frequency of the pulse and the exalted temperature, and frequently sleep ensuing,) the quantity of the tincture may be reduced. Alcoholic stimulants are frequently indicated in connection with this treatment. Cool lotions should be avoided, the only local applications called for being hair-powder and cotton or wadding, to protect the parts from cold currents of air.

The Germans use *Bestuscheff's mixture*, the ethereal tincture of chloride of iron, the latest improved form of which is:

103. ℞. Tincturæ ferri sesquichloridi, 1 part.
Spiritûs ætheris nitrosi, 4 parts.
Mix and expose to the rays of the sun in well-closed bottles till the brownish color disappears. One to two teaspoonfuls every three hours.

It is well, in this connection, to note that Dr. CHARLES BELL, of Edinburgh, who strenuously advocates the treatment of erysipelas by tincture of *muriate* of iron, holds that a natural difference exists between the effects of the two so-called similar preparations of iron, viz., the *muriate* and the *perchloride*. He insists particularly on the administration of the former preparation in full and frequent doses.

PROF. ROBERTS BARTHOLOW, CINCINNATI.

This writer attributes to *belladonna* "a real curative power in erysipelas," especially in idiopathic and facial erysipelas. It may be combined with aconite or digitalis, if the fever is high; with quinia, if there is depression.

104. ℞. Quiniæ sulphatis, ℥ss.
Belladonnæ extracti, gr. iij. M.
Make ten pills. One every four or six hours.

He questions the value of the chloride of iron treatment, but believes that by the local use of nitrate of silver effective results may be obtained in traumatic erysipelas. For the facial variety, he prefers inunctions of oil and cocoa butter.

DR. BEHIER, PARIS.

105. ℞. Tamarindi, ℥ iss.
Mannæ, ʒ j.
Aquæ, f. ℥ x.
Boil, and add toward the end:

Potassii bitartratis, ʒ vj.
Antimonii et potassii tartratis, gr. iss. M.
To be given in four or five doses, at intervals of an hour, in the commencement of erysipelas. If there be delirium, order an enema of musk and opium.

106. ℞. Antimonii et potassii tartratis, gr. ¾.
Sodii sulphatis, ʒ iv. M.
Add to a pint of veal broth, and give a cupful every one or two hours, as a sedative, in the beginning of acute erysipelas.

107. ℞. Spiritûs camphoræ, f. ℥ j.
Infusi sambuci florum, Oj. M.
A useful fomentation in erysipelas.

RÉSUMÉ OF REMEDIES.

Aconite was a favorite remedy, in sthenic cases with much febrile action, of the late Mr. LISTON, of London, gtt. ½-1 every fifteen minutes.

**Ammonii Carbonas* is strongly recommended by Sir THOMAS WATSON, who precedes its use by a purgative. Mr. CAMPBELL DE MORGAN remarks that it is most appropriate where nervous prostration or excitement is prominent, where the skin is soft and cool, the tongue moist and flabby, the pulse quick, large and weak. It is then a valuable remedy. But when the tongue is hard, dry and fissured, the skin hot and dry, it does not agree.

Belladonna, in repeated doses of gr. $\frac{1}{16}$, is often of benefit in reducing arterial excitement. Its effects are enhanced by the previous administration of aconite.

Ferri Bromidum has been employed, with good results, by a number of American physicians.

Ferrichloridi Liquor. A very popular remedy, both externally and internally. (F. 94, 102.)

Potassii Chloras, in combination with the tincture of cinchona, is recommended by Dr. COPLAND in erysipelas supervening upon anasarca, or if there be any tendency to gangrene, or if the temperature of the surface be low and the color deep or dark.

**Quiniæ Sulphas* is indicated in all cases where the tongue becomes clean and the skin moist, and should at once be resorted to if the pulse be soft, tremulous or very rapid, the heat moderate and the delirium low and muttering, or if

suppuration or sloughing has commenced. In such cases it may be combined with the tincture of the chloride of iron, with great advantage. (F. 94.)

**Sodii Sulphis* (as also the bisulphite, and the hyposulphite, and sulphocarbolate of soda,) is strongly recommended by Professor POLLI, of Milan.

Terebinthinæ Oleum has been given with great benefit when the coma has been intense, the pulse sinking and the tongue dry and glazed. Dr. COPLAND counsels the local application of turpentine epithems.

LOCAL APPLICATIONS.

Adeps. Lard inunction is regarded by ERASMUS WILSON as superior to all fluid applications. He first relaxes the skin with hot water or steam, then saturates the surface with hot lard, and afterward covers with wool.

Ammonii Carbonas allays the irritation of the surface. The following lotion, recommended by ERASMUS WILSON, may be employed:

108. ℞. Ammonii carbonatis,
Plumbi acetatis, āā ℥j.
Aquæ rosæ, f.℥viij. M.

Argenti Nitras. See page 107.

Brominium. Dr. GOLDSMITH, U. S. A., recommends (*American Medical Times*, 1863,) the following solution:

109. ℞. Brominii, ℥j.
Potassii bromidi, gr. clx.
Aquæ destillatæ, q. s. ad f.℥iv. M.

Calx Chlorinata. The following solution has been found of benefit:

110. ℞. Calcis chlorinatæ, ℥j–ij.
Aquæ, Oj. M.

The parts should be kept constantly wet with this lotion.

Camphora. M. DELPECH, of Paris, uses, with good effect, an application containing this drug. It consists in painting the affected surface with a solution of camphor in ether (equal weights); and when this is employed in erysipelas of the face, and the affection has not yet reached the hairy scalp, its progress is usually arrested.

Carbolicum Acidum. It appears not improbable that erysipelas is the result of the entrance of minute organisms into the subcutaneous connective tissue and of their multiplication. Acting upon this idea, the experiment has been tried of injecting subcutaneously a one per cent. solution of carbolic acid into places around the disease. Experience has proved this to be a useless and often injurious method. (See *Chicago Med. Jour. and Examiner*, Dec., 1878.)

Collodion is often used to exclude the air. M. BROCARE commends the application of a layer of collodion round the margin of the erysipelatous blush, for a distance of from six to eight centimeters, and also over the affected part. The object of the former is to exercise a circular compression, so as to separate the affected part from the rest of the cutaneous surface. It is necessary

to examine these layers once or twice daily, and to repair the fissures which occur. The collodion used must be free from oil.

Creosote has been recommended by Dr. FAHNSTOCK as a local application. (*Am. Jour. Med. Sciences*, No. 13.)

Ferri Chloridum. Dr. W. L. WHITE remarks in the *British Medical Journal:* Having, during a course of several years, in hospital and private practice, used a variety of local applications in simple or cutaneous erysipelas, I have for two years discarded all for the perchloride of iron, which I have never seen to fail. The form in which I use it is the following: Equal parts of liquor ferri perchloridi fortior (B. P.) and spiritus vini rectificatus; the whole affected surface, and about an inch beyond the affected parts, to be painted over with the lotion by means of a camel's-hair brush.

Ferri Sulphas was much employed by VELPEAU, both in solution and in ointment:

111. ℞. Ferri sulphatis, ℥j.
Aquæ, ℥j. M.

112. ℞. Ferri sulphatis, ℥ij.
Adipis, ℥j. M.

Glycerinæ is of great service, by allaying irritation and preventing the action of the air.

Hæmatoxyli Lignum has been found by M. DESMARTIS (*Medical Times*, June 14th, 1862,) of value in severe traumatic erysipelas, applied in ointment:

113. ℞. Extracti hæmatoxyli,
Adipis, āā ℥ss. M.

Hydrargyri Chloridum Corrosivum was found by Dr. DEWEES to be as effectual as mercurial ointment, when applied in the following solution:

114. ℞. Hydrargyri chloridi corrosivi, gr. j.
Aquæ, f. ℥j. M.

Hydrargyri Unguentum sometimes arrests the course of the disease, when smeared over the parts three or four times. It usually causes salivation.

**Iodine*, painted over the inflamed parts, often quickly alleviates the symptoms. By many it is preferred to the nitrate of silver solution.

Pix Liquida. Dr. HUETER recommends:

115. ℞. Picis liquidæ, ℥ss.
Axungiæ, ℥ij. M.

Annoint the affected part three times a day.

In the hospitals of Prague a paste composed of equal parts of tar and alcohol is the only local dressing in this disease.

Plumbi Subacetatis Liquor Dilutus, kept constantly applied, soothes the parts.

Plumbi Nitras. Dr. JOHN FIRNAT says (*Med. Times*, 1876,) he has found nitrate of lead dissolved in glycerine the best of all applications in this disease.

Potassii Permanganas is recommended by Dr. LEAVITT (*Braithwaite's Retrospect*, vol. VI., 1867,) in the following solution:

116. ℞. Potassii permanganatis, gr. xxx.
Aquæ, ℥j. M.

Potassii Silicas has been found by Prof. ALVARENGA, of Lisbon, to be an admirable application. It is the result of physiological experiment, and not of mere empiricism, the professor having tried the drug first on himself. When applied to the skin, immediately a sensation of coolness and retraction is felt, the skin becomes pale, most markedly so if it has previously been red and congested, and thermometric observations before and after the application prove that there occurs a real diminution of temperature. These phenomena last from five to sixty minutes, and then disappear. They are marked in proportion to the concentration of the solution employed.

Purgatives. Free purgation and the use of turpentine enemata will be in most cases useful. When coma has come on after marked inflammatory symptoms with a rapid pulse, and thickly-coated black, dry, tongue, Dr. COPLAND says he has seen the most marked benefit from the use of calomel in a full dose, with camphor, followed by turpentine and castor oil in the form of an electuary, to be placed on the back of the tongue, and repeated until the bowels begin to act, when its operation may be promoted by enemata. Copious offensive black motions are generally brought away, with marked amelioration of the symptoms. Mr. CAMPBELL DE MORGAN has added his testimony to the value of this treatment in apparently hopeless cases. (*Holmes' System of Surgery*, I., p. 245.)

Sulphurosum Acidum, with equal parts of glycerine, has been found to arrest the spread of the inflammation and relieve the burning.

Terebinthinæ Oleum has been used with success by Dr. VON KACZOROWSKI. His recipe is:

117. ℞. Terebinthinæ olei, ℥x.
Acidi carbolici, ℥j. M.

Paint on the affected part and rub well into the surrounding parts. Then lay on linen compresses wet with solution of acetate of lead (1 to 100 parts,) and over these, iced cloths. Chlorate of potash and opium internally.

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GANGRENE.

PROFESSOR THEODOR BILLROTH.

The *local* treatment of gangrene has two chief objects: 1. To promote detachment of the gangrenous parts by exciting active suppuration, which is accompanied by arrest of the gangrene. 2. To prevent the gangrenous part decomposing, and thus acting injuriously on the patient, and infecting the chamber.

For the first indication, cataplasms were formerly employed, but their efficacy is questionable. Dr. BILLROTH prefers to cover the gangrenous parts and the borders of the healthy tissue with compresses or charpie soaked in *chlorine water*, which also diminishes the bad smell. Other substances which may be used are creosote water, dilute carbolic acid, dilute purified pyroligneous acid, very strong alcohol, spirits of camphor, or oil of turpentine. *Pulverized charcoal* absorbs the gases from the decomposing substances, but as it soils the parts it is perhaps too little used. A very serviceable remedy is the *acetate of alumina*, prepared as follows:

118. ℞. Aluminis, ʒ v.
Plumbi acetatis, ʒ j.
Aquæ, f. ʒ xiij. M.
For a lotion; to be freely applied several times daily.

Permanganate of potash has proved of little service in Dr. BILLROTH'S experience. Solutions of carbolic acid in oil (say 3 ij to f. ʒ xij), praised by some, cannot be used without incurring some danger of poisoning, (manifested by an olive-green color of the urine.) A mixture of *coal-tar and plaster* is serviceable, but must be applied several times daily.

As soon as the gangrenous part is somewhat detached, the shreds should be removed with the scissors, without cutting in to the healthy parts.

The *internal* treatment of gangrene should be strengthening and even stimulant; nourishing food, quinine, acids, and occasionally a few doses of camphor are proper. Severe pain must be met with opiates. In the forms of gangrene known as *raphania* and *ergotism*, emetics, quinine and carbonate of ammonia, are chiefly recommended.

MR. T. HOLMES.

If the gangrene does not spread rapidly and is not accompanied by severe constitutional symptoms, this author believes the expectant treatment may succeed in preserving a part or the whole of the limb. It has also been found that in the gangrene resulting from heat or cold—burns and frost bite—amputation rarely succeeds. So in gangrene from embolism, the associated heart disease renders an operation questionable.

If the surgeon has decided to save the limb, the first indication is to wrap it up as completely as possible in some application which will deodorize the dead parts, and stimulate the living ones to cast them off. For the latter purpose uniform gentle heat is very desirable, and the two indications may be combined by a charcoal poultice, (p. 38); or a solution of carbolic acid or creosote may be applied to the sloughing part, and the whole wrapped up in a thick layer of cotton-wool. The balsam of Peru, or the tinct. benzoin comp. may be formed into a poultice. An old and very useful application at St. George's Hospital is the following:

119. ℞. Ung. elemi, ℔ j.
Ung. sambuci, ℥ iij.
Bals. copaibæ, ℥ iij.

Melt together the ointments, and after they have been removed from the fire, and before they cool, add the copaiba.

The general indications are to clear the alimentary canal so that the patient can be nourished by concentrated food and stimulants, and to give opium freely to induce sleep. When opiates disagree, they must not be continued, but chloral in full doses, ʒj–iss, substituted, or cannabis indica, grs. j–ij of the extract, or ♏ x–xx of the tincture. Equal caution must be exercised in the use of stimulants, that they be not carried to excess.

PROF. S. D. GROSS, M. D.

This writer recommends that purging in hospital grangrene should on no account be neglected. A purge like the following will often be more beneficial in arresting the morbid action than anything else:

120. ℞. Hydrargyri massæ,
Pulv. jalapæ,
Extract. colocynth. comp., āā q. s.

Sufficient of this to induce several large evacuations.

When the system begins to flag, quinine, iron, brandy and broths are called for. The best preparation of iron is the tincture of the chloride, gtt. xv–xxv every three hours in some mucilaginous fluid. But the great constitutional remedy is *opium*, in large doses, grs. ij–iv every six or eight hours, in union with a diaphoretic, as in Dover's powder. The diet should be nutritious, abundant ventilation provided, and scrupulous cleanliness observed. His favorite local remedy has always been acid nitrate of mercury, freely diluted with water and carefully applied with a soft mop. But if the wound is cleansed properly of slough and sanious matter, he is of opinion that it differs little which of the numerous local applications recommended is used.

PROF. KOENIG, OF PRUSSIA

According to Dr. CARL PROEGLER, (*American Practitioner*, Jan., 1872,) the experience of the Franco-Prussian war demonstrated the inefficiency of carbolic acid and permanganate of potassa in deep-seated hospital gangrene. Prof. KOENIG used with much better success *chloride of zinc*. It should be but little diluted, rather oily. Bits of cotton should be dipped in this solution, and afterwards pressed out. A sufficient number of these pieces are placed either flat on the surface of the wound, or partially pressed into the folds of the tissue, the wound having previously been freely opened with the scissors and knife. It is sufficient in most cases to let this caustic tampon remain eight or ten minutes. A whitish crust is found, which requires five or six days to separate. Of course the patient should be chloroformed during the application. If untouched parts remain, the caustic should be again applied.

PROF. VON NÜSSBAUM, OF MUNICH.

This surgeon, in an able article, (*Archiv für Klinische Chirurgie*, Jan., 1876,) writes with regard to the preventive and curative treatment of this affection. In 1872, the first year of its appearance in the hospital, the gangrenous condition of the wounds in those attacked was always readily and successfully controlled by the local application of lotions, containing nitrate of silver, corrosive sublimate or carbolic acid; but as the distinctive changes became more and more acute, it was found necessary to have recourse to more active means, and to apply caustic pastes and the *actual cautery*. Energetic applications of the latter agent proved the most efficacious, and a perfectly successful

result of such treatment was usually indicated by a prompt fall of the patient's temperature. During the prevalence of the gangrene, many different attempts were made to protect healthy wounds and sores from contagion. The continuous water-bath and applications of ice, moist warmth, and lotions of carbolic acid, salicylic acid, chlorine water, etc., were tried, but without any good results. At last LISTER'S *antiseptic* plan of dressing was practiced most strictly, so that no open surface was dressed save under the carbolic acid spray, and no instruments or dressings used save after careful disinfection. The hospital gangrene at once ceased, and not a single case, Prof. VON NÜSSBAUM states, has been observed in his ward since the adoption of this plan of dressing, although at the period of its first use eighty per cent. of the surgical patients had been affected. Prof. VON NÜSSBAUM asserts that he feels it his duty to testify to the efficacy of LISTER'S method as a prophylactic against hospital gangrene. He insists, however, upon the necessity of carrying out this plan of dressing in all its details. He holds that the secret of its great success in this instance lay in a pedantic exactness in its mode of application, and he expresses it as his opinion that the surgeon who allows a wound to remain for one second open to the air, and unprotected by the carbolic acid spray, cannot reasonably expect any good results from his practice of LISTER'S method.

PROF. JOSEPH JONES, M. D., LOUISIANA.

The following formula has proved useful in hospital gangrene, and other diseases of an asthenic typhoid character:

121. ℞. Tincturæ ferri chloridi, f.℥j.
Potassii chloratis, ʒiv.
Quiniæ sulphatis, ʒij.
Acidi hydrochlorici, f.℥j.
Aquæ destillatæ, f.ʒij.

Dissolve the chlorate in the water, add the hydrochloric acid, then dissolve in this mixture the quinine, and finally add the iron. Thirty to sixty drops, in water, three or four times a day.

Such a mixture should not be continued for more than two weeks. In place of it, the following is of great value in gangrenous and ill-conditioned wounds:

122. ℞. Ferri et potassii tartratis, ʒj.
Acidi tartarici, ʒij.
Quiniæ sulphatis, ʒij.
Aquæ destillatæ, f.ʒxij.

Dissolve the acid in the water, add the quinine, and last the iron. Shake well before using. A tablespoonful in a wineglassful of water, thrice daily.

When the iron seems too astringent, the following combination is valuable:

123. ℞.	Strychniæ sulphatis,	grs. ij.	
	Quiniæ sulphatis,	ʒ ij.	
	Ferri redacti,	ʒ iij.	
	Extracti rhei,	ʒ ij.	M.

Make one hundred pills. One three times a day.

When there are signs of syphilis or scrofula present, the following fills the important indication of acting both as a tonic and alterative:

124. ℞.	Syrupi ferri iodidi,	f. ʒ j.	
	Tincturæ iodinii,	f. ʒ ij.	
	Potassii iodidi,	ʒ ij.	
	Syrupi zingiberis,	f. ʒ vj.	
	Aquæ destillatæ,	f. ʒ j.	

Dissolve the iodide of potash in the water, add the tincture of iodine, and then mingle with the syrups of iodide of iron and ginger. A teaspoonful in a wine-glassful of water three times a day.

As a local application, the liberal and thorough application of fuming nitric acid proved most successful in the Confederate service.

SURGEON MIDDLETON GOLDSMITH, U. S. A.

This surgeon recommended, as the most efficient local application:

125. ℞.	Brominii,	f. ʒ j.	
	Potassii bromidi,	ʒ ij.	
	Aquæ destillatæ,	ad f. ʒ iv.	M.

To apply to the part as a lotion.

The pure bromine, as a cauterant to the dangerous surfaces, proved most efficient in the Federal hospitals.

DR. A. NETTER, OF RHEIMS.

This surgeon, following DUPUYTREN, has found *camphor*, early applied and in large quantities, in the form of a powder, a "sure cure" for hospital gangrene and phagadenic chancres.

RÉSUMÉ OF REMEDIES.

Ammoniæ Muriat. Dr. CHARLES GRU claims much success in the treatment of senile gangrene by immersing the limb in a foot-bath containing about half a pound, 250 grammes, of muriate of ammonia and retaining it there several

hours. Fomentations of the solution are constantly applied after the bath. (*Medical and Surgical Reporter*, October, 1867.)

**Aqua Picis* was extensively used by the Confederate surgeons during the war, with very excellent results. They claim that by its free use as a local disinfectant, the powerful caustics often recommended were not needed. Prof. L. A. DUGAS, of Georgia, introduced it.

Baptisia Tinctoria. A decoction of the wild indigo, ℥j to aquæ Oj, in dose of f.℥ss every four or eight hours, has been asserted to be extremely useful in threatened or existing mortification. It is also used externally as a cataplasm.

**Brominium* is one of the most efficient agents in hospital gangrene. (F. 25.)

Carbo. Charcoal poultices have been recommended, but are of doubtful efficacy.

Carbolicum Acidum, applied pure to the gangrenous surface, is a very effectual caustic.

Chromicum Acidum, in the strength of 100 grains to the ounce of water, has been recommended as a local escharotic in hospital gangrene.

Ferri Persulphas is an excellent remedy for local use.

Hydrargyri Nitratis Liquor. The favorite remedy for hospital gangrene with Prof. S. D. GROSS has always been the acid nitrate of mercury, freely diluted with water, and applied with a soft mop.

Iodinium. In *chronic gangrene*, the best local remedies are the dilute tincture of iodine, brushed very thoroughly, twice a day, over the whole of the affected surface, and the use of the bandage applied with moderate force, and kept constantly wet with a solution of opium and acetate of lead, or of muriate of ammonia. (GROSS.)

Lacticum Acidum has been recommended by Professor SAMUEL JACKSON, of Philadelphia. Buttermilk has been found very useful as a wash.

Nitricum Acidum has been employed as a cauterant. It is needlessly severe.

**Opium.* As remarked by Professor GROSS, the great constitutional remedy in hospital gangrene is opium in some form. It should be given in large doses in union with a diaphoretic (ipecacuhana.)

Oxygen. In the Parisian hospitals benefit has been reported by maintaining the limb in an atmosphere of oxygen. A caoutchouc bag is fastened around the limb, and then, through a stop-cock, filled with the gas.

Potassii Permanganas. This substance was employed in hospital gangrene, both internally and externally, by Dr. HINKLE, of Penna., with excellent effect. He gave by the mouth grs. j–ij, in solution, and externally used a concentrated solution as an escharotic, applying it thoroughly after the part had been well cleansed, and using as a dressing lint soaked in a weaker solution.

Saccharum. Powdered white sugar dusted upon the raw surface was found by Dr. JOHN S. PACKARD, of Philadelphia, to be extremely useful.

Salicylicum Acidum has been employed, but it is inferior to carbolic acid.

**Terebinthinæ Oleum.* Dr. R. BARTHOLOW has pointed out that turpentine is one of

the most efficacious agents in hospital gangrene. The mortified parts are first removed with the scissors, and the remedy is then applied directly to the affected surface, by means of a piece of cotton cloth saturated with it Fetor is removed, and sloughing arrested, and but little pain attends the application. He also recommends its internal use, gtt. x every three hours.

HEMORRHAGE.

The therapeutical means for the control of surgical hemorrhage include (1) arterial sedatives, (2) astringents, and (3) styptics.

The arterial sedative of first importance is *repose* of the part and of the system. The bleeding part should be elevated, and motion avoided. Arterial action may also be much diminished by position, and forced flexion, as previously directed in the treatment of inflammation. (See page 18.)

A full dose of *opium* after serious loss of blood will greatly aid in maintaining a tranquil circulation, and prevent the recurrence of hemorrhage. Dr. GROSS states that "it is surprising that this remedy is not more generally employed than it seems to be."

Of nearly equal value, especially when considerable arterial excitement is present, is *veratrum viride*. One of the surgeons in the late war writes: "An extended experience with veratrum during eighteen years assures me of its great value in abating and even warding off *inflammation, and in controlling hemorrhage*. Hæmoptysis, hæmaturia, metrorrhagia, gastric hemorrhage, all yield with a facility which it has not been my fortune to experience with my other medical agents whatsoever. During the late war, I was in the habit of thus controlling the pulse for the purpose of preventing secondary hemorrhage. In one such case, the exhibition of veratrum, during ten days, at my suggestion, rendered an amputation below the knee unnecessary, which was barely escaped by the patient, and had been decided upon by the attendant surgeon."

The internal use of *astringents* is called for in cases of passive hemorrhage, when without arterial excitement there is strong tendency to oozing of blood, consequent on the hemorrhagic diathesis, on relaxation of the vasa-motor system, or else on some disease of the circulatory vessels. Of these the most efficient are *ergot* and *acetate of lead*. They should be given in large doses, frequently repeated. The

urtica urens has long enjoyed a reputation as controlling passive hemorrhage. Dr. J. E. GARRETSON, of Philadelphia, recommends the tincture of *Erigeron Canadense* in single-drop doses each minute. He has found it very useful in epistaxis, internal hemorrhage, &c.

The rule in the use of *styptics* is, that where we can arrest the hemorrhage by compression, position or ligation, they should not be employed. (BILLROTH.) In parenchymatous bleeding from the face, neck or perineum, we may resort to styptics with advantage, if it makes no difference whether the wound suppurates subsequently; but if the hemorrhage be considerable, and the styptics fail, subsequent ligation is much more difficult, as the wound is often so much smeared by the previous applications.

As *contra-indications* to the local use of styptics, Dr. WARING enumerates the following: Inflammation; active hemorrhage; inflammatory diarrhœa; an excessive mucous discharge, attended by inflammation; rigidity of parts; extensive external injuries. In these cases, the local application of astringents will not only fail to arrest the hemorrhage, but may excite excessive irritability or inflammation of the surrounding tissues.

DR. B. W. RICHARDSON, OF LONDON.

In the *Medical Times and Gazette*, 1867, this physician suggested a hæmostatic preparation, which under the name of "RICHARDSON'S *styptic colloid*," has achieved considerable popularity. The directions he gave for preparing it are as follows:

The object to be arrived at is to saturate ether entirely with tannin and colloid substance, xyloidine or gun-cotton. In the first step of the process, the tannin, rendered as pure as can be, is treated with stronger alcohol, and is made to digest in the alcohol for several days. Then stronger ether is added, until the whole of the thick alcoholic mixture is rendered quite fluid. Next, the gun-cotton is put in until it ceases readily to dissolve. The solution is then ready for use. It can be applied directly with a brush, or mixed with an equal quantity of ether; or in the form of a spray. This styptic is deodorant, excludes the air from every point of the wound, thus preventing oxydation and irritation, checks the oozing of blood, holds the parts in apposition, and soothes the pain of the wound.

CARBOLIZED STYPTIC COLLODION.

126. ℞.	Collodion,	100	parts.
	Carbolic acid,	10	"
	Tannin,	5	"
	Benzoic acid (from gum),	5	"

Mix the ingredients in the order above given, and agitate until perfect solution is effected.

This preparation has a brown color, and leaves on evaporation a strongly adherent pellicle. It promptly coagulates blood, leaving a consistent clot, and favors the cicatrization of the wound. (Dr. CARLO PANESI.)

FERRATED STYPTIC COLLODION.

127. ℞.	Collodion,	6	parts.
	Crystallized perchloride of iron,	1	part.

Mix very gradually, so as not to generate much heat. Apply locally.

This composition has a yellowish color, and is perfectly limpid. It leaves on the skin a yellow, elastic pellicle, and is a useful hæmostatic. (*Journal de Medecine d'Anvers*, 1867.)

STYPTIC COTTON.

The following method for the preparation of this substance is that preferred at the Pennsylvania Hospital, Philadelphia: Take a roll of fine jeweler's cotton, and thoroughly saturate it in a mixture of Monsel's solution of the subsulphate of iron, diluted with two parts of water; let it stand in the mixture for forty-eight hours; press the liquid out, and dry in a warm room, then pick or card out in fine shreds. It is better to make in small quantities, as there seems to be some change in the cotton when kept for any length of time, it losing its texture and breaking up in a fine powder when handled, thus rendering it unfit for application.

STYPTIC LINT.

This may be prepared by steeping lint in the tincture of the perchloride of iron. Another very useful form, especially when it is desired to produce a superficial slough, as well as to stop bleeding, is *blue lint*. This is prepared by steeping the lint in a saturated solution of the sulphate of copper, and drying carefully. It should be kept in stopped bottles, ready for use. (T. HOLMES.)

STYPTIC WOOL.

Boil the finest carded wool for half an hour in a solution containing four per cent. of soda; then wash in cool, soft water, wring and dry it. Dip several times in fluid chloride of iron diluted with one-third of water, squeeze and dry in a cool draught of air. Card, and keep dry in caoutchouc bags or glass-stoppered bottles. (Dr. EHRLE, of Isny, in *The Lancet*, 1871.)

128. ℞. Plumbi acetatis, gr. xv.
Digitalis pulveris, gr. vij.
Opii pulveris, gr. iij.
Confectionis rosæ, gr. xv.

Divide into twenty pills. Three or four a day, to check hemorrhages, of various origin.

DR. OROSI, OF ITALY.

129. ℞. Acidi tannici, ℈ ij.
Sacchari, ʒ ss.
Spiritûs lavandulæ, gtt. v.
Adipis, ʒ iss. M.

This styptic ointment is to be spread on charpie, which is to be left in contact with wounds, the seat of passive hemorrhages.

PROF. PANCOAST, PHILADELPHIA.

130. ℞. Potassii carbonatis, ʒ ij.
Saponis venet., ʒ j.
Spiritûs vini rectifi., f.ʒ iij. M.

Apply locally. A very good styptic, especially in the milder forms of hemorrhages.

PROF. S. D. GROSS, PHILADELPHIA.

131. ℞. Iodinii, ʒ j.
Potassii iodidi, ʒ ij.
Alcoholis, f.ʒ ij.
Aquæ destillatæ, f.ʒ iv. M.

Use as an injection in hemorrhage of the internal cavities, especially of the uterus from the presence of fibroid tumors, etc.

DR. MONSEL.

132. ℞. Acidi tannici, ℈ j.
Aluminis, ℈ ij.
Aquæ rosæ, f.ʒ iij. M.

For external use as a hæmostatic.

PAGLIARI'S STYPTIC.

133. ℞. Tinct. benzoini, f.ʒ viij.
Aluminis, lb. j.
Aquæ, lb. x.

Mix and boil for six hours in a glazed earthen vessel, stirring constantly and supplying the loss with hot water. Strain and keep in stoppered bottles. It is said to cause an instantaneous coagulation of the blood.

MARTIN'S TANNIN SOLUTION.

134. ℞. Tannic acid (old), ℥j.
Distilled water, ℥ij. M.
After subsidence decant the supernatant fluid.

This is highly recommended by Mr. P. MIALL, in the *British Medical Journal*, Nov. 7th, 1874. He states that it is a most powerful astringent, almost free from irritating properties. It is one of the best dressings for wounds—far superior to collodion, and even less irritating than the styptic colloid, which it somewhat resembles. If applied by a brush and allowed to dry, it soon forms a pellicle which excludes the air, and gives ease to pain. It may be applied to almost any form of ulcer, and to wounds after amputations or other operations, especially when not very deep. It answers well, for instance, after the operation for hare-lip, painted over the pins and threads, in the same way as collodion is sometimes used.

RÉSUMÉ OF REMEDIES.

**Acida.* Sulphuric, nitric and acetic acids, when diluted, effectually check bleeding from the smaller vessels and capillaries. *Vinegar*, which is always at hand, may often be called into requisition in slight cuts, leech bites, &c. The stronger acids may also be used for their cauterant effect on oozing surfaces.

Aconitum, as a cardiac depressant, is occasionally valuable in hemorrhage.

Agaric is valuable in leech bites, cuts, oozing from the gums, &c.

Alcohol. When the heart is suddenly enfeebled by hemorrhage, alcoholic stimulants may be cautiously given, care being had not to bring about violent reaction. Opium is preferable.

Alnus Nicana. The bark of the speckled alder contains a large amount of tannic acid, and has been employed with success as a hæmostatic by Dr. T. R. DUPINS. (*Canada Lancet*, October, 1871.) Cloths saturated in astrong decoction were applied to the bleeding surface.

Alumen is a valuable styptic. It is an ingredient of PAGLIARI'S styptic (F. 133) and others. It may be dusted on after wiping dry.

Ammonia. In the exhaustion from severe hemorrhage, some of the preparations of ammonia are exceedingly valuable heart stimulants.

Argenti Nitras. Bleeding leech bites, &c., may be touched with a stick of caustic.

Cibotium Cuminghii. The light brown, soft filaments of this East Indian tree fern (known as Pengawhar Djambi) have been imported for use as a local hæmostatic. They are used like styptic cotton, and are reported very efficient.

Collodion, useful in the form of RICHARDSON'S "styptic collodion." (See above, p. 120.)

Creosotum. In hemorrhages from the nasal, pharyngeal and oral cavities, this is an

excellent local application. In the case of dental hemorrhage, a small tampon, impregnated with a thick mixture of creosote in substance and alumen, is to be pressed into the bleeding alveolar cavity. If the hemorrhage does not stop at once, another similar compress should be superimposed, and the pressure increased with the finger. In obstinate nasal hemorrhages, plugging the nose with charpie tampons, impregnated with the same mixture, is uniformly successful.

Cupri Sulphas, used in the preparation of *blue lint* (p. 119,) and in stick to leech bites, &c.

**Digitalis* has an undoubted power to arrest hemorrhage. It is appropriate in internal hemorrhages, when large doses must be given, preferably of the infusion.

**Ergota*, internally or in hypodermic injection, contracts the arterioles, and is invaluable in the hemorrhagic diathesis.

Erigeron Canadense is highly esteemed by Dr. GARRETSON. (See above.)

Ferrum. The preparations of iron stand at the head of the list of styptics. The solution of the persulphate (Monsel's salt) is perhaps the most popular. The tincture of the chloride or perchloride is much used. Mr. ERICHSEN considers it "the readiest and most efficient hæmostatic." Others assert, however, that it is most apt to irritate the surface of wounds and prevent union by the first intention than the persulphate, which is quite free from causticity. (RINGER, GROSS.) The liquor ferri pernitratis is preferred by some English surgeons.

The following is an efficient mixture in the hemorrhagic diathesis:

135. ℞.	Acidi gallici,	ʒss.	
	Acidi sulphurici diluti,	f.ʒj.	
	Tinct. opii deodorati,	f.ʒj.	
	Infusi rosæ comp.,	f.ʒiv.	M.

A tablespoonful every four hours or oftener. (BARTHOLOW.)

Galla. Gallic acid is a moderately energetic local styptic.

Hamamelis. In the hemorrhagic diathesis, and in persistent oozing of blood, one or two drops of the tincture of witch-hazel every two hours is often efficient.

Krameria is a powerful internal astringent.

Matico is not an astringent, but has a well-sustained reputation as a hæmostatic, both for local use and as an internal remedy.

Myristica. Nutmeg, browned like coffee, powdered and applied to the bleeding surface, is a prompt styptic. A case of marked hemorrhagic diathesis, where it was used "with astonishing success," is reported by Dr. S. B. CHASE, of Iowa. (*Medical and Surgical Reporter*, Dec., 1874.)

Nux Vomica. Where the hemorrhagic tendency depends upon inpoverished blood, a combination of nux vomica and iron is very serviceable.

**Opium*. In the exhaustion after profuse hemorrhage, no remedy is equal to a full dose of opium. (See above, p. 119.)

Plumbum. Acetate of lead in solution is an astringent solution of minor importance. Internally, in doses of gr. v every hour or two, it is very efficient in visceral hemorrhage.

Tannicum Acidum is employed in a variety of styptic preparations. (See F. 126, 129, 132, 134.)

**Terebinthinæ Oleum.* In the hemorrhagic diathesis and internal hemorrhage, f.℥ ss of turpentine every two hours often proves efficient. It is supposed to act as a vaso-motor stimulant. Applied externally, it is strongly recommended by Professor BILLROTH. Some wads of charpie are soaked in it and introduced into the wound. It is, however, an heroic remedy, not only because its application induces severe pain, but also because it excites severe inflammation in the wound and its vicinity.

Veratrum Viride, as a cardiac depressant, is well spoken of in active hemorrhage. (Above, p. 119.)

GENERAL MEASURES.

Cauterization. When styptics fail, resort must be had to cauterants. Of these the nitrate of silver, nitric acid and carbolic acid are most in use. The actual cautery may also be employed. It should be at a black or dull-red heat, and lightly applied. Dr. THOMAS C. STELLWAGEN, of Philadelphia, has recommended pointed sticks of hard or compressed *wood* as cauteries. These sticks may be made more inflammable by soaking in something like a solution of saltpetre, before drying and passing through the process of condensation, which dentists accomplish by an ordinary draw-plate, such as is used for making wire. To use one, a suitable portion should be burned in the flame of an ordinary match for a few moments, and then, by blowing out the flame, the incandescent portion at the point may be brought to the shape desired, and the temperature raised by passing rapidly through the air, or *vice versa*, lowered by allowing a trifling coating of ash to accumulate upon the surface. This will burn thus for one or more minutes, according as more or less is charred by the flame, and one or more of the small sticks are used singly or tied together, or the stick made of larger diameter.

Cold. The exposure of the cut surface to the cold air is often sufficient. Lint soaked in ice-water, or a small stream of cold water allowed to drip on the wound, or, when it is to be had, coating the surface with clean *snow* or the spray of ether, are more positive means. If cold does not check the bleeding immediately, it is useless to continue it. The following "freezing mixtures" are sometimes useful. They reduce the temperature from 50° to about 8°–10° Fah.

136. ℞. Ammonii chloridi,
Potassii nitratis, āā ℥ j.
Aquæ, f.℥ ij. M.

137. ℞. Ammonii nitratis,
Sodii chloridi, āā ℥ j.
Aquæ frigidæ (ice), f.℥ ijss.

Position. A valuable aid in checking hemorrhage in one of the extremities is by placing it in such a position that the flow of blood to the part is checked or suspended. The simplest position is that of *elevation*, the arm or the leg being raised above the level of the trunk. Still more efficient is *forced flexion*. The following experimental results, reported by Mr. GEORGE T.

HEATH to the British Medical Association, indicate both the manner and relative effects of this method:

A. *Upper Extremity.* 1. Forearm bent on arm by muscular action of the individual experimented on. In persons with considerable muscular development, pulse at the wrist entirely stopped. 2. Forearm bent on arm simply, with the hand flat on the shoulder. Pulse weak and indistinct; sometimes, but rarely, quite stopped. 3. Forearm bent on arm, with hand pronated. Pulse more weakened, sometimes stopped. 4. Forearm bent on arm, hand pronated and extended. Pulse usually quite stopped. 5. Forearm bent on arm, hand pronated and bent at wrist. Pulse either almost imperceptible or quite stopped. 6. Forearm bent on arm, with a roll of lint or cambric handkerchief rolled up and laid in bend of elbow. Pulse always entirely stopped.

B. *Lower Extremity.* 1. Leg flexed on thigh. Pulse in posterior tibial artery much weakened. 2. Leg flexed on thigh, and thigh on abdomen. Pulse in posterior tibial stopped altogether almost invariably. 3. Leg flexed on thigh, with a roll of lint or cambric pocket handkerchief laid in the bend of the knee. Pulse stopped in some cases, not always; but with flexion of thigh on abdomen also, pulse invariably stopped. 4. Thigh flexed on abdomen, the trunk bent forward. Pulse materially weakened.

From these experiments, as well as from those cases of actual bleeding in which this method has been used, it may be fairly inferred that we possess in over-flexion a blood-controlling agent of considerable power, which can be applied on the shortest notice.

Pressure is an effectual hæmostatic when it can be applied evenly over the whole wounded surface. Compresses and bandages are the means usually employed. When the hemorrhage is from cavities they may be plugged. The digital pressure applied by the fingers on the course of the artery above the wound, and instrumental pressure by tourniquets, the Esmarch bandage, &c., need not be considered here.

Torsion. This method of arresting hemorrhage is valuable in arteries of small calibre, though it has also been successfully employed in the main vessels of the extremities. It is applied by several methods:

Free Torsion. In this method, THIERRY recommends that the artery should be neither fixed nor drawn out, but simply grasped with a pair of broad forceps, and twisted without breaking off the end of the vessel; ten rounds in the case of large, six in medium-sized, and four in small arteries, being usually sufficient. FRICKE says the artery should, without violence, be drawn out about two-thirds of an inch, but not fixed, lest the twist may extend to the attached part of the vessel. The artery, thus held, should be detached from the surrounding tissues by a second pair of forceps. Twisting is then to be continued until the end of the artery is torn off, eight or nine revolutions being generally necessary.

Limited Torsion. In this process, AMUSSAT advises to draw out the artery five or six inches by means of a pair of forceps with a closing bolt. The vessel is then to be separated from its connections with a second pair of forceps, and held at its fixed point by the latter while the end is twisted off by the former.

Combined Method. The artery is first seized with a pair of broad-pointed lock-forceps (one blade being placed within, and the other without the vessel,) and gently held without tension; with a second pair of forceps it is then separated from its connections, and fixed just below its point of attachment. The vessel is now twisted until it is felt to break, which generally occurs after the fourth, fifth, or sixth revolution.

All these methods recommend twisting the artery until it breaks. On the contrary, Mr. THOMAS BRYANT, of London, advises that the end be rotated only till the sense of resistance has ceased, and that it should not be twisted off. This surgeon has probably had the most favorable experience of any. He says: "After seven years' experience of the practice, applied to vessels of all sizes, the femoral being the largest, I have had no mishaps. * * * * * I have had stumps heal in a week, and patients up in two weeks, without one single drawback. At Guy's Hospital, up to 1874, we have had two hundred consecutive cases of amputation of the thigh, leg, arm and forearm, in which all the arteries had been twisted (one hundred and ten of them having been of the femoral artery,) and no case of secondary hemorrhage."

Transfusion. As a last resort in hemorrhage, transfusion should be resorted to. The operation is easy and often successful. Experience has taught that it is not advisable to inject more than f.℥ iv–viij of blood, and that this is sufficient to recall life. (BILLROTH.)

PHAGEDÆNA.

DR. JOHN H. BRINTON, OF PHILADELPHIA.

As an application in phagedæna this surgeon places great reliance on *bromine.* Having scraped away the slough with a wooden spatula, he applies the following to the disintegrated surface:

138. ℞. Brominii, f.℥j.
Potassii bromidi, gr. xxx.
Aquæ, f.℥ij. M.
Apply thoroughly to the part.

After the application (done under ether) place cloths dipped in olive oil upon the cauterized surface; remove these a few hours later, and keep flaxseed poultices on the part until the slough separates, which is usually two or three days. Should the succeeding granulations be weak and feeble they should be dressed with—

139. ℞. Iodoformi, gr. xx.
Cerati simplicis, ℥j. M.

If the surface turns gray, brush it very lightly with solid nitrate of silver. Internally, some preparation of iron, the tincture of the chloride or the potassio-tartrate, is required. (*Medical and Surgical Reporter*, December, 1873.)

MR. T. HOLMES.

This surgeon points out that phagedæna differs from hospital gangrene in that little or no constitutional fever accompanies it, and that it involves little danger of life. The treatment, he thinks, should be mainly local. Energetic caustics, especially fuming nitric acid, should be applied to the surface of the ulcer to prevent it from spreading, followed by detergent and stimulating applications. *Opium*, said by some to exert a specific effect in phagedæna, has not merited this praise in Mr. HOLMES' hands, though it is useful to allay irritation and procure sleep. The bowels should be evacuated, and stimulants with ammonia, quinine, and nourishing food are indicated.

PROF. PROFETA, OF PALERMO.

140. ℞. Pepsini, ℥ ss.
Acidi lactici, ♏ij.
Aquæ, f.℥ iij. M.
Use as a lotion to the ulcerated surface

DR. F. F. MAURY, OF PHILADELPHIA.

This surgeon (*Medical and Surgical Reporter*, June 1st, 1870,) recommends as the caustic, mono-hydrated sulphuric or nitric acid. *Carbo-sulphuric paste* is also good.

141. ℞. Acidi sulphurici,
Carbonis ligni, āā ℥ ss.

The parts should be cauterized boldly and thoroughly and *early*. It should be repeated every two or three days, until the disease is checked. As a deodorizer and detergent, use water very freely, the permanganate of potassium and Labarraque's solution. Oakum is excellent to catch and absorb the discharges.

Internally, the potassio-tartrate of iron, gr. xx–l, and quinine, gr.

vj, should be given daily. Under no circumstances should any form of mercury be administered. The utmost cleanliness is indispensable.

DR. D. B. SIMMONS, OF JAPAN.

After failing with the standard treatments, this surgeon obtained excellent results by the continuous immersion of the diseased parts in *hot or warm water*. (See pp. 20, 76.) A hot sitz-bath may be used continuously for twenty-four to thirty-six hours; or, every alternate hour, an iodoform dressing being applied in the meantime. In the interval, iodoform powder may be freely sprinkled over the part. The water promptly relieves the burning and smarting pain. (*The Medical Record*, Sept., 1875.)

DR. ROBERTS BARTHOLOW, OF CINCINNATI.

In sloughing phagedæna, the *iodide of iron* is frequently prescribed where the accident occurs in debilitated constitutions. Some authorities prefer the *tartrate* or *potassio-tartrate* under these circumstances, but the iodide acts with more promptness and vigor.

As an escharotic, probably none is more desirable than *nitric acid*. A glass rod or bit of pine is dipped into the acid and applied, care being taken to penetrate to all the sinuosities of the sore. A water or spirit dressing, or dilute tincture of benzoin, may then be applied.

For further regarding phagedæna, see Phagedænic Ulcers and Chancres.

PYÆMIA.

DR. ALONZO CLARK, OF NEW YORK.

In that form of septic blood-poisoning which follows puerperal lesions, as well as in others, this author recommends *opium* in large doses, frequently repeated and kept up for a long time. The bowels of a patient can be kept unmoved for two or three weeks, his respiration may be reduced to twelve or fourteen in a minute, and, in fact, he may be kept under the fullest influence of the drug for a long time. In order to carry out this treatment, it is necessary that the physician remain with his patient, only being relieved by another phy-

sician, constantly. Besides being used in this way, opium is also used against the profuse diarrhœa in pyæmia, and as a narcotic against the restlessness of the patients.

F. FORCHEIMER, M. D., OF CINCINNATI.

This writer observes (*The Clinic*, Feb. 24th, 1877,) that the method of treatment by stimulation is especially valuable in acute, foudroyante cases of septicæmia. Here it is our duty to keep the patient alive until the shock given to the system by the introduction of so much virulent material into the blood may have passed over. In these cases this method is the only one that promises any hope for success. In order to insure methodical application of the various remedies, it is well to give the patient something, say every quarter of an hour or ten minutes. Thus, we begin by giving a dose of brandy; at the end of a quarter of an hour, the patient receives a liberal quantity of beef tea; at the end of half an hour, we give a few grains of quinine; a quarter of an hour from this time he receives milk, or punch, wine whey, or whatever we wish to give; and then we begin with brandy again, and the next hour have such changes made as may be desirable, always having the remedies given at a fixed interval. In this way we are always sure that our patient receives enough, and we can, without skilled nurses, rely upon our treatment being carried out. If we want to add to the stimulating effects of alcohol the antipyretic, we simply increase the dose, and we, as a rule, need fear no bad results from the administration of this remedy, as septicæmic patients seem to be able to bear great quantities without bad effects.

MR. JOHN ERICHSEN.

The curative treatment of pyæmia is stated by this writer to be most unpromising. The only plan he relies upon is the stimulating and tonic one, by alcohol, ammonia, bark and beef tea. He has, however, seen recoveries effected by the administration of large doses of *quinine*, gr. v every three hours. This very decidedly checks the rigors, but does not seem to diminish the temperature or the sweats. In some cases he has administered chlorate of potash, in full doses, ℥ ij–iv, in the day, in addition to the quinine and wine, with benefit. If the depression is great, he administers carbonate of ammonia, gr. v–xv, well diluted, from time to time, with fluid nourishment, brandy, &c. The most complete hygienic measures must be observed.

MR. JOHN WOOD, LONDON.

This surgeon has successfully treated some cases of pyæmia by *carbolizing* the patient—first, by keeping the body in a carbolized atmosphere, employing small muslin bags filled with carbolized powders placed in the bed, and keeping the bed-clothes raised by means of a cradle; and secondly, by the internal administration of sulpho-carbolate of iron. (*Medical and Surgical Reporter*, July 22d, 1871.)

DR. THOMAS H. TANNER.

Calomel and blood-letting, once frequently employed in this disease, are now regarded as of more than doubtful efficacy. The treatment should be supporting and stimulating from the outset. Great attention should be paid to the nursing and hygienic surroundings. The room should be large and well ventilated, and the most scrupulous cleanliness enforced. The body of the patient should be sponged, a part at a time, and several times a day, with a mixture of vinegar and water; his strength should be supported on alcoholic stimulants and concentrated animal food. Opium is necessary to quiet restlessness, and quinine in large doses may be administered. The following combination is valuable:

142. ℞,	Quiniæ sulphatis,	gr. xij–xxiv.	
	Acidi sulphurici aromatici,	f. ʒ iss.	
	Tincturæ lupuli,	f. ʒ vj.	
	Aquam,	ad f. ʒ viij.	M.

One-sixth part three or four times a day.

The sulphites have been recommended. (Their efficacy is doubtful.) The mineral acids generally act well. One of them may be combined as in the above prescription. When there is exhaustion and nervous irritability, phosphoric acid combined with bark is useful.

143. ℞.	Acidi phosphorici diluti,	f. ℥ iss.	
	Tincturæ cinchonæ comp.,	f. ʒ j.	
	Syrupi aurantii,	f. ʒ vj.	
	Infusi aurantii,	f. ℨ viij.	M.

One-sixth part three times a day dissolved in one or two pints of lemonade or barley-water, the whole of which the patient should drink from time to time through the day.

Iron is also a remedy of great service. It may be combined with glycerine and an aromatic:

144. ℞. Tincturæ ferri chloridi,
Glycerinæ, āā f.℥ ss.
Tincturæ cardamomi comp., f.℥ j.
Aquam, ad f.℥ viij. M.
One-eighth part every three or four hours.

The strength must be kept up by concentrated nourishment and alcoholic stimulants, as beer, wine and brandy. Sponging the surface of the body with vinegar and water is refreshing when there is much exhaustion.

SIR JAMES PAGET, M. D., LONDON.*

Chronic Pyæmia.—This distinguished surgeon points out the not infrequent occurrence of pyæmia in a chronic form. Its local evidences are, more often than those of acute pyæmia, seated exclusively or chiefly in different parts of the same tissues; they are more frequent in the trunks and limbs than in internal organs; and when seated in the veins, are mostly found toward the close of the disease.

The prognosis is usually favorable. The slower the pulse and breathing, and the less the sweating, the greater the probabilities of recovery.

The usual treatment should be with good, patient nursing, a moderate use of stimulants and an abundance of fresh air.

Internally one may prescribe:

145. ℞. Liquoris potassæ, ℥j.
This amount in water thrice daily.

The curative influence of *liquor potassæ* in some cases seems clearly proved. It appears to exert a positive and almost specific influence on certain morbid deposits, as deep-seated inflammatory infiltrations.

RÉSUMÉ OF REMEDIES.

**Alcohol.* The demand for alcohol as food and as an aid to assimilation is very great in this disease. Recently Dr. Theodor Clemens, of Frankfort-on-the-Main, has reported eight cases of severe type, which recovered under the administration of good red wine in as large amounts as they would drink.

Aqua Calcis, with milk, is a valuable dietetic auxiliary. Dr. Joseph Bell, of Edinburgh, has reported three recoveries in which, with hardly any medicine, he gave milk with lime-water, eggs and beef tea, at short intervals.

**Clinical Lectures and Essays*, 1875.

Carbolicum Acidum has been experimented with in pyæmia, but the results are unsatisfactory.

Ferri Chloridi Tinctura has been administered in large doses, with little benefit.

Hypophosphites of sodium, potassium and ammonium. These have yielded good results in some cases, and deserve trial.

Hyposulphites. The sulphites and bisulphites of the alkaline metals were largely used during our war, but the general experience was that they are of little use.

**Quiniæ Sulphas.* M. VERNEUIL, of Paris, as well as many other surgeons, speaks emphatically of the value of quinine, given in large doses. To prevent the rigors, Dr. GROSS prescribes:

146. ℞. Quiniæ sulphatis, gr. x.
Morphiæ sulphatis, gr. ss. M.

This amount every four or six hours. No benefit, he says, can accrue from smaller doses.

Dr. FORDYCE BARKER gives gr. x–xx twice daily, until constitutional effects are produced. He emphatically claims for it the power of preventing the formation of pyogenic deposits.

Terebinthinæ Oleum. Dr. J. S. HOLDEN reports the recovery of a severe case of pyæmia under the use of ʒss doses of this agent. (*Lancet*, Jan., 1874.) It probably acts as a vaso-motor stimulant.

Veratrum Viride. In the early stages of septicæmia, Dr. FORDYCE BARKER strongly commends this sedative. He usually commences by giving five drops of the tincture of veratrum viride every hour. If a decided impression be not made on the pulse after two or three doses, he increases each dose by one drop until a positive effect is gained, and thus brings down the pulse from 120, 130 or 140 to below 80. The influence of the veratrum viride should be steadily kept up until two or three days after all constitutional disturbance has subsided. When the pulse is once reduced by the veratrum viride, usually two, three or four drops every hour will be sufficient.

SHOCK.

T. LAUDER BRUNTON, M. D., OF LONDON.

This author observes that in shock we have two conditions to remove: the first, feebleness of the heart, due to the action of the vagus; second, the dilatation of the great vessels, especially the veins in the abdominal and thoracic cavities.

To counteract the cardiac debility, we apply stimulants, especially that powerful heart stimulant, *heat.* A hot poultice or a bottle of hot water should be placed over the heart. Towels wrung out with hot water should be bound round the head. The patient should be in a

warm atmosphere or placed in a warm bath, or his feet in a hot foot-bath, and brandy and ether given internally.

To cause contraction of the blood vessels, acetic acid and ammonia should be placed to the nose, precautions being taken that the air-passages be not irritated too violently. Painful impressions may also be called to our aid. Mustard plasters to the extremities, pinching the fingers, twitching the calves and soles, give a stimulus to the vaso-motor nerves.

A valuable remedy in shock is *digitalis;* half-drachm doses of the tincture may be given every hour. It has been used successfully by various practitioners. (*The Practitioner*, October, 1873.)

Heat has also been used in the form of the *hot-air bath* or the inhalation of *hot steam*, by Dr. E. D. MAPOTHER, of Dublin. (*Medical Press and Circular*, 1880.) He also gives enemata of water at 120° Fah., and frictions with rubefacients. Dr. HUNTER, of Philadelphia, used, with excellent results, the *hot-water bath*, beginning with 98° and rapidly raised to 110°. The patient is left in the bath from ten to fifteen minutes. (*Medical Record*, Jan., 1879.) Dr. MAPOTHER, however, considers the hot-air much more effective than the hot-water bath.

PROF. WILLIAM FULLER, OF MONTREAL.

This surgeon states (*Canada Medical Record*, February, 1877,) that to restore the circulation in shock a cardiac stimulant is not so much required as a means of restoring the tone to the vascular system. Alcohol he considers in such an emergency is far inferior to *opium*, whose special action is to dilate the vessels leading to the brain, so that the nerve centres at least receive their due amount of blood. Of course rest, heat, and external stimulants are to be used in addition, as occasion requires.

Professor ALBERT BLUM, in the *Archives Gen. de Med.*, considers the fatal issue in shock due to failure of the heart's action, and recommends laying the patient horizontally, applying heat, and giving stimulants with opium. Electricity may be very useful. He says, "All active surgery should be forbidden under shock."

PROF. S. D. GROSS, OF PHILADELPHIA.

The treatment of shock is naturally divided into two parts—the

promotion of reaction, and the moderation of subsequent excessive action.

The patient should be placed recumbently, constriction removed from his person, free access of cold air provided, cold water dashed in his face, and mustard plasters be applied to the præcordial regions and extremities. If the case is severe, the spine may be rubbed with turpentine and a stimulating enema given. As soon as he can swallow, brandy and water, in teaspoonful doses, may be administered. Should the accident have occurred after a full meal, an emetic of alum, ipecacuanha, sulphate of zinc, or what, perhaps, is still better under such circumstances, equal parts of common salt and mustard should be given. Even in shock from lesions of the brain this course is proper, when the stomach is oppressed by a heavy meal.

To moderate the resulting inflammation, the reaction should be held in abeyance by sponging the surface frequently with cool or tepid water, by administering a little morphia and antimony, by low diet and perfect tranquillity of mind and body. The diet for the first few days should consist mainly of animal broths, with, perhaps, milk punch or wine whey, cautiously followed by food of a more substantial character. Starvation is not to be thought of, and bleeding should very rarely be resorted to. Anodynes may be given early and freely, especially the ammoniated tincture of opium with valerian.

MR. T. HOLMES.

This writer lays particular stress on the condition of "prostration with excitement" which is apt to follow severe shock. It is marked by a rapid and weak pulse, the temperature not rising in proportion to the pulse, the stomach irritable and rejecting all or most that is put into it, the patient sleepless, restless, and more or less delirious.

This condition must be combated by *morphia* injected subcutaneously, or by chloral or opium in full doses, if the stomach will bear it. *Hyoscianus* combined with opium often acts well. The warmth of the body and extremities must be sedulously maintained, and the irritability of the stomach lessened, by the application of mustard poultices, by constantly sucking small morsels of ice, by the administration of dilute *hydrocyanic acid* ℥iij–iv in a small quantity of some vehicle, or *creosote* ℥ij in pill every three hours. At the same time food must be supplied in the most grateful and most nourishing form, in small

quantities very often repeated, and a stimulant (which ought not to be more than is absolutely necessary) in varied kinds, according to the patient's tastes and habits, and with similar precautions as to quantity and repetition.

MR. JONATHAN HUTCHINSON, F. R. S.

In that common form of shock from injuries to the head known as *concussion of the brain*, this able surgeon holds that the symptoms are due solely to arterial paralysis, and that there is no tendency to any process allied to inflammation. All there is to do, therefore, is to restore the tone to the vaso-motor nerves, and prevent cerebral softening.

During the first stage, that of collapse, the patient should be let alone, and allowed to rally. If the collapse is extreme, or unusually prolonged, a diffusible stimulant may be given by enema. Generally it is sufficient to place the patient in a recumbent position, with the head low, and apply warmth to the extremities.

The remedies from which we may select are chiefly—first, those which diminish the temperature of the head; second, those which diminish the quantity of the blood; third, those which place the heart at a disadvantage as regards sending blood into the head; fourth, those which, by causing great vascular turgescence at some other part, and also irritation of nerves, tend to diminish the vascular turgescence and nerve-irritation at the affected one; fifth, those which in a direct manner induce contraction of the arterial walls.

First. In order to diminish the temperature of the head, and thus induce contraction of the blood-vessels of the brain, the simple measure of shaving the scalp is of great importance, and, if the weather be cool, will often be quite sufficient to prevent the scalp from ever attaining an undue temperature. In warm weather, however, and whenever the heat of the scalp is well marked, either ice-bladders or evaporating lotions ought to be used.

Secondly. The chief measure by which we diminish the quantities of the circulating fluid is by direct abstraction of it by venesection. Purgation and blistering are other less direct methods of attaining the same end. As regards the influence of venesection upon the passive congestion of the brain, there can be no doubt that it is often very beneficial. If, however, the brain substance have been contused, there

is a risk that softening may follow, and this risk will probably be increased by any measure which diminishes the patient's strength.

Thirdly. The semi-erect position, where not disagreeable to the patient, should be preferred.

Fourthly. As to the good effects of counter-irritation, there can be no doubt whatever. He has been accustomed to employ it more freely than is generally done—applying repeated *blisters* (and very large ones) to the nape of the neck, shoulders and upper parts of the arms, and often with very marked advantage. Blisters may be used at any time after reaction is established, and may often be continued throughout the whole of the case, until the patient is quite free from head symptoms. Patients who have recovered consciousness, but are still suffering from headache and confusion of thought, often speak in the most emphatic manner of the relief which they experience from the influence of a large blister.

Purgation is, perhaps, of all remedies, the one most universally and conspicuously beneficial in the treatment of the effects of concussion. Constipation is a tolerably constant condition during the state of general nervous torpor induced by concussion. Several doses of some brisk purgative are often necessary before the bowels can be got to act, but when they do so, a change for the better in the patient's symptoms is almost always remarked.

In addition to the measures of active treatment which we have adverted to, there are certain other negative rules of scarcely less importance. Concussion patients ought to be kept perfectly quiet and free from all excitement. Their diet should be mild and unstimulating. All forms of alcoholic beverages ought to be most carefully excluded.

DR. HOOD, OF LONDON.

Railway Shock.—This writer (*Lancet*, March, 1875,) urges the importance of *blood-letting* after a railway accident, in order to reduce the amount of fluid movement by the weakened heart. He considers there is not the smallest risk or danger in employing it, if the patient is bled in an *upright* posture, and the operation is performed, not immediately after the accident, but when sufficient reaction has been established, either spontaneously or by the administration of stimulants.

He adds that it is believed by many that *vinegar* is the best means of restoring consciousness after an accident due to concussion, and that

it is a substitute both for alcoholic stimulants and for bleeding. It may be given in small quantities to the extent of a wineglassful.

DR. J. MILNER FOTHERGILL

has found the following combination very frequently useful in cases of acute shock:

147. ℞. Ammonii carbonatis, gr. v.
Spiritûs chloroformi, f. ℥ss.
Aquam, ad f. ℥j.
For one dose. To be repeated as required.

A teaspoonful of sal volatile in water is a pleasant and efficient stimulant. When the shock is but partial, as is witnessed in the passage of gall stones or calculi, stimulants are not desirable. A full dose of opium is then sometimes of service.

An efficient resource in collapse from shock is the hypodermic injection of *ether*, ℥j–℥iv. The points of election are the abdominal walls and the thigh. The nozzle of the syringe should be introduced deeply, so as to avoid the formation of abscesses. Originally suggested by Dr. HECKER, in the collapse following excessive uterine hemorrhage, it may profitably be employed in any similar case. The effect on the pulse is prompt and easily recognized. Dr. ORTILLE, of Lille, speaking of his success with this measure, strongly recommends friction over the spot of injection, to promote absorption, and he calls attention to the contracted pupil as the sign of an anæmic brain, requiring the use of a rapid and diffusible stimulant, such as ether. Ether may also be given by enema.

Galvanism, especially over the præcardial region, is a most efficacious measure.

BLEEDING IN SHOCK.

All modern surgeons unite in condemning blood-letting in the early treatment of shock. But after the immediate effects have passed away, and it becomes necessary to guard against the violence of the reaction, opinions differ widely as to this measure. Mr. ERICHSEN considers that then blood-letting is of essential service, and is "far too much neglected at the present day." Dr. GROSS warns strongly against venesection, except in young and plethoric subjects, with a tendency to serious inflammation of some important internal organ.

The opposite course, he teaches, often exerts a most pernicious influence on the patient's recovery. Mr. HOLMES, Mr. SAVORY and Mr. TRAVERS all lean decidedly against the abstraction of blood in any except unusual cases, as leading to that condition of "prostration with excitement" which is fraught with so much danger. Dr. B. W. RICHARDSON, of London, on the other hand, advocates its frequent employment. He claims to have witnessed prompt and excellent effects from it, without any of the dangerous sequelæ spoken of by other observers. His opinion, however, is not of sufficient weight to overbalance that of the surgeons above quoted.

PROF. HENRY H. SMITH, M. D., PHILADELPHIA.

This author lays much stress on the distinction to be drawn between *immediate* or *primary* and *insidious* or *secondary* shock. The symptoms of the latter are often so masked that they escape the inexperienced observer until they are so far gone that the case is hopeless. (For the diagnosis, see Dr. SMITH'S *Principles and Practice of Surgery*, p. 45). The treatment required is to preserve the powers of the nervous system by food and stimulants, while all muscular action on the part of the patient should be prohibited. Heat to the feet, cold to the head and stimulating frictions to the spine are also required.

RÉSUMÉ OF REMEDIES.

**Acetum.* Strong vinegar applied externally, inhaled, and taken internally in teaspoonful doses, properly diluted and oft repeated, is a very efficient restorative, nearly always at hand, and followed by no objectionable reaction.

Alcohol. The routine practice of giving brandy and water, or whisky and water, in shock, is of doubtful propriety. Very frequently it is followed by dangerous reaction, disturbance of the stomach and nervous irritation.

Ammonii Carbonas, and the *liquor ammoniæ aromaticus* are valuable aids in restoring consciousness and strength.

Belladonna and *Atropia*, hypodermically, have been used with advantage in severe shock. They bring the heat to the surface and quicken the breathing.

Caffea. Small doses of strong, hot coffee are excellent stimulants in shock.

Digitalis is highly spoken of by Dr. T. L. BRUNTON. (p. 132.)

**Ether* may be given by the mouth, thrown into the rectum, or administered hypodermically. In either way it is a powerful restorative.

Hyoscyamus, combined with opium, is praised by Mr. HOLMES. (p. 133.)

Opium, in a full dose, or a subcutaneous injection of morphia, is, according to Dr. FULLER, (p. 132,) the best treatment in shock.

Terebinthina. Frictions and stupes of turpentine, and small doses of it *internally*, have been praised by Dr. E. D. MAPOTHER. The diffusible and diuretic action of the drug render it one of the most suitable in shock.

TETANUS.

PROF. ROBERTS BARTHOLOW, M. D., PHILADELPHIA.

Of all the remedies which have been proposed for tetanus, *physostigma* must be regarded as the most useful. All cases treated by Calabar bean are not managed with equal judgment and skill. Dr. FRASER has indicated (*The Practitioner*, Vol. I., p. 83,) the following mode of using it: Commence the treatment by subcutaneous injection; repeat such injection until the system is decidedly affected; then administer the remedy by the mouth, in a dose three times as large as is found necessary by subcutaneous injection. This plan may be safely followed, even in a child of nine years. If the administration by the mouth continues to produce remedial effects, it should be persevered with; but in severe cases, subcutaneous injection should alone be employed, and it should always be preferred when severe and continued spasms occur, when a fatal result is imminent from exhaustion, and when apnœa threatens a fatal termination. No arbitrary rules of dosage can be laid down. For an adult, gr. j of the extract by the mouth, or gr. $\frac{1}{3}$ by subcutaneous injection, will generally suffice to begin with. This should be repeated in two hours, when its effects will usually have passed off, and the succeeding doses modified according to the experience thus gained. The doses are to be continued in increasing quantities until the physiological effect, in diminishing reflex excitability, is produced, or until the sedative action of the drug on the circulation is carried to a dangerous extreme, or until constant nausea and vomiting compel a discontinuance.

MR. T. HOLMES, M. A.

Beyond the surgical measures of removing the source of irritation, excision or stretching of the nerve, or amputation of the limb, this writer considers the treatment of acute tetanus completely empirical. He is inclined to except from this sweeping condemnation the appli-

cation of ice to the spine, but this he has not found successful. Our great object should be to keep the patient alive till the time when, as experience teaches, the irritation wears out, and the natural powers carry the patient through. Food may be given in a fluid form, through the nostrils, or anæsthetics administered to relax the spasm. Internally, he believes the *tincture of aconite* the most promising drug, gtt. v, in water, every two hours. Medicines like opium, tending to constipation, are injurious. In sub-acute tetanus, the tendency of which is to recovery, under any or no treatment, chloral, camphor, and turpentine are doubtless useful.

WILLIAM FENWICK, M. D., GLASGOW.

148. ℞. Pulveris physostigmatis,
Pulveris rhei, āā ʒj. M.

Divide into twenty powders. One to be taken every four hours during the day; also an occasional dose at night, making the average quantity of fifteen grains of each in twenty-four hours.

Under the influence of this combination, Dr. F. has seen none of the depressing effects which the bean produces by itself. He reports (*Glasgow Medical Journal*, May, 1869,) the improvement under this treatment as marked.

G. OLIVER, M. D., LONDON.

149. ℞. Atropiæ, gr. $\frac{1}{60}$.

In the form of a granule, one every three hours, and linimentum belladonnæ to be rubbed over the spine and rigid muscles every six hours.

A successful case of treatment by this method, is reported in the *British Medical Journal* for August 22d, 1868. The patient was kept under the influence of atropia for three weeks. He then quickly and completely recovered his usual health, under iron and quinine.

DR. JOHN IMRAY, DOMINICA, W. I.

This writer states, in the *Medical Times and Gazette*, May, 1876, that in his experience, neither *opium* nor *chloral*, administered alone, seemed to check the onward course of the disease, but given together, the effect was markedly good. The doses were from ten to forty

drops of tincture opium with from fifteen to forty grains of chloral, a new dose to be given whenever the effect of the previous one is manifestly wearing off. If there is any difficulty about the administration by the mouth, rectal injections were found to answer equally well.

DR. A. P. BOON, ST. KITTS, W. I.

After an unusually successful experience, this writer (*Lancet*, February, 1878,) lays down these rules of treatment:

First. The room must be dark and quiet; draughts are to be carefully excluded. Too much stress cannot be placed on this; the least rush of cold air, flash of light, or even sudden noise, may bring on a spasm.

Second. Nourishment should be given freely, in a liquid form, and at frequent intervals. It should be always warm, cold drink being avoided for the same reason that cold air is excluded. Stimulants should be administered from the first, in small quantities, say four or six ounces of brandy in the twenty-four hours, and increased if the pulse indicates it.

Third. Never give purgatives. It is obvious that when our object is to keep the nervous system quiet, we should avoid purgatives of all kinds.

Fourth. Hydrate of chloral, together with extract of *cannabis indica*, is to be given in rapidly increasing doses, until the frequency and severity of the spasms are controlled. He generally commences with thirty grains of chloral in an ounce of water, and two grains of the extract of Indian hemp, in the form of pill, every three or four hours, for an adult, and increases the former by fifteen grains and the latter by two grains, until the desired effect is produced, when the spasms will be few and far between, the abdominal muscles almost normally flaccid, and the mouth opened to at least an inch. The patient is then in a state of stupor, from which he can be roused to take nourishment. He finds that sixty grains of chloral and four grains of the extract is a full dose in fairly severe cases.

PROF. E. DI RENZI, M. D.

This Italian surgeon has found no benefit from amputation of the wounded part, in acute tetanus, nor from the use of internal remedies. He found, however, by experiment, that *light* renders the tetanic contrac-

tions of animal and man more frequent and intense, while absolute *repose*, during the absence of all stimulus, retards the tetanus and renders it less fatal. Of three cases of severe tetanus he treated almost exclusively by absolute repose, two cases were cured. The patients were kept isolated in a dark room; all noise, or other stimulus or irritation, was avoided, except such as was caused by the administration of food and beverage at long intervals. In one case, death resulted, notwithstanding the administration of large doses of hydrate of chloral and several hypodermic injections of woorara. It would appear that the chloral increases the difficulty of respiration, which is already affected by the disease.

In the actual condition of science, he believes *absolute repose* shows itself to be the principal remedy in the treatment of tetanus. The removal of stimulus should, however, be as complete as possible, and be recognized as an important accessory.

DR. EDWARD VANDEPOEL, NEW YORK.

This physician records (*Medical and Surgical Reporter*, May 7th, 1870,) twelve cases of tetanus, eleven of which recovered, under the use of *strychnia*, as originally suggested by Prof. VALENTINE MOTT, of New York city.

The dose, in all cases, should be from one-sixteenth to one-twelfth of a grain of strychnia every two hours, until involuntary twitching of the muscles of the extremities takes place, when the masseters will relax. The same dose should then be continued, but given only once in six hours, to maintain the advantage until, by the frequent administration of concentrated nourishment, convalescence commences. In the one case lost, the tetanic symptoms abated, but the attending physician injudiciously suspended the remedy, and they re-commenced, and the patient died of exhaustion.

RÉSUMÉ OF REMEDIES.

**Aconitum*, in large doses, has been employed by a number of practitioners, and deserves further trials. There seems to be great tolerance of the drug in this disease. It acts by diminishing the irritability of that portion of the nervous centre which controls reflex muscular action.

**Æther* has been found to be very useful in arresting tetanic symptoms in the wounded. Cases, both of idiopathic and traumatic tetanus, cured by the inhalation of ether, have been reported.

Alcohol. Stimulants, first proposed by Dr. RUSH, in this disease, are now rarely trusted to alone. Large doses of wine, brandy, and porter, have been given with success, in a number of reported cases.

Allium has been administered internally, in this disease, and by friction along the spine and limbs, with alleged success.

Antimonii et Potassii Tartras has, it is said, proved effectual in nauseant and emetic doses.

Atropia has been given hypodermically. Its effects are probably the same as belladonna (which see.)

Belladonna. The claims of this drug have been strongly urged by Dr. HENRY FITZGIBBON, surgeon to the Dublin City Hospital. (*Dublin Journal of Medical Science*, March, 1877.) He gives gr. ¼ of the extract, every two to four hours. The local application of aconite and belladonna to the wound, he also considers important as diminishing the irritability of the wounded nerve. Warm baths and laxative medicines also form part of his treatment. He also uses tobacco stupes and chloroform, and considers it would be perfectly rational to combine the internal administration of belladonna with subcutaneous injections of curarine or nicotine; but, as the latter has, at first, a tendency to produce an excited and irritated condition of the cord, before it causes any paralysis of the muscular system, he should be disposed to employ curarine in preference.

Brominium. See Potassii Bromidum.

**Cannabis Indica* has been largely employed, but with very diverse results. It has been given in the form of the extract (gr. iij), or of the tincture (ɱxxx), repeated every half hour, hour, or two hours, the object being to produce and maintain narcotism. Dr. JOHN C. LUCAS (*Medical Times and Gazette*, June, 1880,) advocates smoking the leaves, mixed with three or four times their quantity of tobacco. At the first indication of the spasm, the pipe is used, and will generally avert it.

**Chloral.* This substance has been highly commended in tetanus. According to Dr. CHOPARD, (*Thèse de Paris*, 1876,) it should be given in full doses, rapidly increased. ℥ss to ℥j, daily, may be required. Administration by the mouth is preferable. Five or ten drops of a solution of bicarbonate of soda (gr. l. to aquæ ℥j) will counteract the irritating effect of the chloral, and should be added to each dose. Often, however, administration by enema is necessary. These are best prepared by emulsifying the chloral solution with yolk of egg and adding a wineglass of milk; gr. xl–lx may be given at once in this manner. It is absolutely necessary to diminish the use of chloral gradually, or the convulsions will return. Dr. IMRAY combines it with opium. (p. 139.) In *Schmidt's Jahrbücher*, June, 1879, Dr. KNECHT, after a close criticism of all recent means, gives the decided preference to chlorale in this disease.

**Chloroformum.* The inhalation of chloroform in small and frequently-repeated doses, with a large admixture of air, relieves the muscular spasms when it fails to produce a lasting benefit. By some recent writers it is claimed to be the agent which has cured the most cases. Chloroform frictions are also recommended.

Colchicum has been used, but not with very satisfactory results.

**Conium* is regarded by Dr. HARLEY as the natural antagonist of this disease, but, to be effectual, large doses of the succus must be given. If the patient cannot swallow, from f.ʒ vj–xij of the succus, warmed to the temperature of the body, should be injected into the bowels, and repeated every two, three or four hours, according to the condition of the muscles.

Curare. See Woorara.

Glonoin. Nitro-glycerine has been employed, but must be given cautiously. It is an exceedingly powerful stimulant of the vascular system. The proper method of prescribing it is to dissolve one drop in one hundred drops of alcohol. Ten drops of this ($\frac{1}{10}$ drop of the nitro-glycerine) is a dose. The mixture is non-explosive. The dose has an immediate effect on being placed on the tongue. Its actual value in this, as in other diseases, is not yet ascertained.

Lobelia Inflata is largely used by veterinary surgeons in tetanus of the lower animals. Several successful cases have also been reported in the human subject. Three of these may be found in the *Medical and Surgical Reporter*, Dec. 3d, 1870, by Dr. GEORGE O. BUTLER, of Ohio. His formula was:

150. ℞. Fol. lobeliæ inflatæ, ℥ ij.
Aquæ bullientis, ʒ xij. M.

Make an infusion. A teaspoonful to be given every half hour, or sufficiently often to maintain a constant diaphoresis.

When the jaws are set, enemata of this infusion may be given every fifteen minutes until emesis is produced, after which it may be administered as above, by the mouth.

Morphia has been frequently used hypodermically in this disease. See Hypodermic Injections below.

Nicotia has been given hypodermically. Internally, nicotine, in doses of gt. ss–ijss in sherry and water, several times a day, has been employed with success. The alkaloid has the effect of relaxing the muscles, stopping the delirium and producing profuse sweating, which exhales a strong odor of snuff. So powerful a poison must be given with caution.

Nitrite of Amyl, by inhalation, has been exhibited with success in traumatic tetanus. Its action is similar, but less in degree, to that of glonoin (q. v.)

Nux Vomica. See Strychnia.

Oleum Terebinthinæ, internally, or by enema, sometimes exerts a beneficial influence. It may be used as an adjunct to other remedies.

Opium has been given in large doses, but is inferior, in this disease, to aconite, belladonna, chloroform or physostigma. Dr. RUPPANER recommends the hypodermic injection of gtt. xxv–lx, of liquor opii compositus, in the back, near the spinal column.

**Physostigma* is a remedy of much value, and one of which there is great tolerance in this disease. Dr. FRASER, of Edinburgh, is in favor of subcutaneous injections, especially in severe cases, (*Practitioner*, August, 1868,) but Dr. EBEN. WATSON, who has had great experience in its use, has failed to obtain, in this way, any very decided effect. He prefers to prescribe the alcoholic extract in solution, as a weak tincture; but should she stomach reject this, he gives a double dose in a starch-water enema. (*Practitioner*, April,

1870.) He agrees with Dr. FRASER in the necessity of giving it in large and repeated doses, the sole limit being the subsidence of the tetanic spasms, or the development of the poisonous effects of the drug to a dangerous degree. The strength of the patient must also be well supported by fluid nourishment and stimulants. Physostigma may fail, however, even when its full physiological effects have been produced. (F. 148.)

Potassii Bromidum, in doses of gr. xx–xl, every two or three hours, has been given in a number of reported cases of idiomatic and traumatic tetanus, with markedly favorable effects.

Quiniæ Sulphas has been used, but is of doubtful power.

Strychnia, in doses of gr. $\frac{1}{16}$–$\frac{1}{12}$, every two hours, has been employed with benefit.

Tabacum. Enemata have been employed with success in the hands of some practitioners, but have failed entirely in others. Their strength should never exceed gr. xxx of the leaves in O ss of water, and ammonia, brandy and other stimulants must be given, to prevent too great depression. The topical application of tobacco has been recommended in traumatic tetanus, a strong infusion of Cavendish tobacco being applied to the wound and surrounding parts, previously blistered; in idiopathic tetanus, it being applied to a blistered surface over the spine. See, also, Nicotia.

Woorara, in large doses, hypodermically, gr. $\frac{1}{60}$–$\frac{1}{30}$–$\frac{1}{12}$, is successful in the hands of SPENCER WELLS and others. It has not, however, justified the confident hopes that were at first entertained of its powers in tetanus.

Cathartics are useful in most cases.

EXTERNAL REMEDIES.

Actual Cautery, applied to the wound, in traumatic tetanus, was proposed by LARREY.

Baths. Warm baths, 97°–100° F., of three to four hours' duration, repeated daily, have been advised.

Blood-letting. When there exists a disposition to isochronic inflammation, and the patient is plethoric, and the pulse full, venesection at the onset has been advised.

Cantharis. Prof. STILLÉ states that in tetanus, "even when of traumatic origin, blistering on either side of the spinous processes and throughout the entire length of the spine, is an important, if not an essential element of treatment. It is possible, though not certain, that the endermic use of the salts of morphia on the parts thus denuded, adds greatly to the efficacy of the vesication. It were, perhaps, better to introduce the narcotic by inoculation."

Chloroformum. Chloroform frictions are said to afford relief.

Electricity. Dr. MENDELL, of Berlin, has successfully treated two cases by the local application of a gentle current of electricity to the affected muscles, with the apparent effect of subduing the excessive irritability of the sentient nerves. When a strong current is directed to the cord, powerful contractions result. The positive pole should be directed to the antagonists of the affected muscles.

Frigus. *Cold Affusions* have proved of little value in traumatic tetanus, but of great

service in the idiopathic form, particularly in warm climates. *Ice in bladders*, steadily applied along the whole length of the spine, has proved efficient in both the traumatic and idiopathic varieties of the disease.

Hypodermic Injections. The following remedies have been employed hypodermically, in tetanus: *Atropia*, without much success; *Liquor opii compositus*, gtt. xxv–xl, by Dr. RUPPANER, with the effect of securing comparative calm and ease; *Morphia*, gr. j–ij, during the day, of the muriate, by DEMARQUAY, the needle being carried deeply into the contracted muscles, and, if possible, to the point of entrance to the nerves; *Nicotia*, gr. $\frac{1}{80}$, about one-half of the traumatic cases, according to Prof. BARTHOLOW, treated with it getting well—a better result than from any other remedy, excepting physosigma; **Physostigma*, gr. $\frac{1}{4}$ to commence with, which may be considered as one of the most useful remedies yet employed (p. 143); *Woorara*, gr. $\frac{1}{60}$–$\frac{1}{30}$–$\frac{1}{15}$, with varying results, but short of the expectations based upon its peculiar physiological action.

Potassa. Counter-irritation, by caustic potassa, over the spinal column, has repeatedly proved of service in traumatic tetanus.

TRAUMATIC OR SURGICAL FEVER.

MR. T. HOLMES.

Traumatic fever is one of the occasional phenomena of inflammation, but is so important that it demands a careful study. Professor BILLROTH'S experiments seem to prove that the absorption of decomposing matter by healthy cellular tissue will produce fever, and doubtless a similar absorption by inflamed cellular tissue will have a like effect.

Some amount of traumatic fever generally, but by no means always, occurs after grave operations and severe injuries, and its persistence beyond the usual period is an evil omen.

Beyond sedulous attention to the general state of the patient, cautious inspection of the part, to see that no discharges are confined in the wound, and cleanly and skillful dressing, there is no particular treatment for traumatic fever. Attention must rather be directed to the care of the injury from which the fever springs. Everything which makes the wound do well, that is, which favors union with the least possible amount of suppuration, and as perfect immunity from putrefaction as possible, will diminish to that extent the liability to traumatic fever, and its severity when it arises.

PROF. THEODOR BILLROTH.

In simple traumatic and suppurative fever, which does not pass the usual limits, we need generally use nothing but cooling drinks, fever diet, and a little morphine at night, to secure good rest.

If the fever lasts longer and assumes a peculiar character, we may resort to febrifuges. *Digitalis* is of little use, on account of its uncertain action. *Veratrum* reduces the temperature, but appears to do little good in toxic traumatic fevers. *Aconite* was formerly highly recommended, but Dr. BILLROTH has seen no good from it. *Quinine* he has found the most efficacious, especially in intermittent suppurative (hectic) fever, particularly in combination with opium. He gives grs. vj–xvj in the course of the afternoon, followed at night by gr. j of opium.

Of remedies which directly oppose the toxic condition of the blood, he has seen no effect from the mineral acids, the sulphites and chlorine water. Nor has the administration of purgatives or emetics proved of avail. When the skin is dry, we can occasionally do good by inducing profuse perspiration. This may be done by a warm bath, lasting for an hour, and then wrapping in blankets. He has seen patients so low with septicæmia that they were pronounced incurable, saved by this remedy. Copious diuresis does not seem much to affect the general condition.

PROF. D. HAYES AGNEW, OF PHILADELPHIA.

In the surgical fever of vigorous patients, where there is no gastro-intestinal irritation, the following antimonial is applicable:

151. ℞. Antimonii et potassii tartratis, gr. j,
Liquoris potassii citratis, f.℥ vj.
Liquoris morphiæ sulphatis, f.℥ vj. M.
A dessertspoonful every two hours.

After the bowels have been freely evacuated, and the circulation has become quiet and the temperature fallen, an opiate may be given; but if it is desirable to exhibit the opium before the pyrexia has abated, it should be given in combination with such articles as tend to increase the activity of the kidneys and skin. The following formulæ embody the best combinations of the kinds in Dr. A.'s experience:

152. ℞. Antimonii et potassii tartratis, gr. ½.
Spiritûs ætheris nitrosi, f.℥ iij.
Liquoris morphiæ sulphatis,
Aquæ aurantii florum, āā f.℥ ss. M.
A dessertspoonful in a half tumbler of water, every two hours.

153. ℞. Morphiæ sulphatis, gr. j.
Misturæ potassæ citratis, f. ℥ vss.
Curaçoæ, f. ℥ ss. M.
A dessertspoonful every two hours.

TRAUMATIC NEURALGIA AND PARALYSIS.

DR. J. MASON WARREN, OF BOSTON.*

Severe traumatic neuralgia is not an infrequent sequela both of gunshot wounds, amputations and other injuries. Frequently its severity and persistence is out of all proportion to the extent of the lesion itself; a slight wound, where the injury seems to have been to the tissues surrounding a nervous trunk, rather than the nerve itself, being followed by intense and protracted pain.

It is important to inquire into the alleged efficacy of *dividing the nerve* as a remedy in such cases. In answer to this, it may be stated that if the nerve is simply divided, sensation will probably return before the tissues implicated in the original injury have had time to recover their normal condition, and that, therefore, the operation will afford only very transient relief, and may have to be repeated several times. If, on the other hand, a portion of the nerve is excised, the restoration of the nervous function will be very much longer in taking place; but there will also be great danger that the repair will be incomplete, or that it will fail altogether, and thus entail permanent loss both of sensation and motion. The deliberate removal of a long section of the nerve can be but very rarely indicated, and then only as a last resort, as the possible alternative of amputation.

The rational treatment of these affections should be based on the fact that their natural tendency is to recovery, if only we can keep the patient comfortable. This can only be effected by division of the nerve, or by the use, either local or general, of narcotics. Gratifying success, in some instances, has been obtained by the repeated hypodermic use of morphia. In a case of severe neuralgic affection of the median nerve, Dr. WARREN injected half a grain of the sulphate of morphia, in solution, deep under the skin of the forearm twice a day for six months. At the expiration of that time, he laid bare and dis-

* *Surgical Observations.* Boston, 1867.

sected out the nerve, but did not divide it. The edges of the wound were loosely approximated, and water-dressings applied. The pain disappeared, and, under the use of continued injections, the patient recovered.

In a number of cases, Dr. WARREN succeeded without resorting to any operation whatever. His plan was to keep the whole limb in a state of perfect rest, by suitable appliances; to maintain its capillary circulation stimulated by wearing a sleeve of oiled silk, closed at the end, so as entirely to exclude the external air; by an invigorating course for the general health; and by the internal use of iodide of potassium. Warmth and moisture constantly maintained, locally passive motion, with otherwise entire rest of the part, proved most effective in his hands.

No doubt in many cases of traumatic neuralgia, the pain is kept up by infiltrations and indurations in and around the neurilemma; and in case that the suffering does not yield to the usual external and internal remedies, the operation of cutting down upon the nerve is demanded. Several successful cases have formerly been reported by Dr. H. C. WYMAN, of Michigan. (*Peninsular Journal of Medicine*, Oct., 1874.) He dissects down to the nerve, splits open the neurilemma with a sharp bistoury, closes the wound with sutures, and lets it heal by the suppurative process. He claims that the successful issue of his cases demonstrates the feasibility of operative procedures in a class of patients who have hitherto received no benefit from the treatment laid down by medical writers.

In regard to *complete division of the nerve*, this operation has lost much of its serious character since the dread of consequent paralysis has been dissipated. It has been demonstrated by experiment that if a nerve be cut some distance from its termination in a muscle, and its irritability exhausted, it will first show signs of returning irritability nearest its distal extremity. HERRMAN experimented upon the sciatic nerve of a dog, which he exposed high, and cut, and exhausted its irritability. The distal portion of the sciatic being separated from the remainder of the nerve, and entirely cut off from the spinal system, could receive no recuperative power from that source. Yet it was found, after a time, to have regained its irritability, and perceptibly in a greater degree nearest its distal extremity. The interesting question as to how this nerve was able to resume for a time its normal condition, and to give rise to natural phenomena, can only be answered

by admitting that, after being exhausted and rendered completely incapable of reacting to the usual stimuli, it had recovered and been nourished from its distal extremity, whether through its ultimate connection with muscular fibre, or through a grosser circulation which exists between the muscular and nerve tissues.

PROF. THEODOR BILLROTH.

This distinguished surgeon, in treating the pain and stiffness following old injuries, especially of the joints and the parts adjacent, has great faith in *massage*. Looking upon the pain as excited by infiltrations around the nerve-sheaths, he teaches that the resorption of such infiltrations can only take place by permeable lymphatics, assisted by an energetic circulation in the blood-vessels, especially the small veins; and fluxion excited in the parts by the systematic employment of massage, and active and passive movements, favors the resorption of the infiltrations that have been thus dispersed. Those cases must be exempted from this mode of treatment in which the pathological process has led to softening of tissues. In these, as a general rule, the walls of the vessels are also softened, and massage might give rise to extravasation, inflammation and the formation of abscess. The procedure, therefore, requires to be employed with great prudence in white swelling; but in pains and stiffness following old injuries, and chronic rheumatic inflammation of joints, we are able to act more boldly, and surprising results may be obtained by perseverance. The least trust is to be placed in this kneading treatment in those articular neuroses in which there is absolutely no objective abnormality to be found, neither swelling nor infiltration being present.

DR. W. H. WATKINS, OF NEW ORLEANS.

Loss of the power of motion in the wounded limb, to a greater or less extent—in other words, *traumatic paralysis*—is not rare after gunshot wounds; and the treatment is usually quite unsatisfactory. Dr. WATKINS, however, reports a case of paralysis of the deltoid, both of sensation and motion, in which the local application of *strychnia* brought great amendment. (*New Orleans Journal of Medicine*, Jan., 1868.) The formula used was as follows:

154. R. Strychniæ sulphatis, gr. ij.
Chloroformi, ℥j. M.

For a liniment. Apply night and morning.

This solution was thoroughly rubbed into the skin of the affected muscles twice daily, about one-half of it being used at a time. After continuing these frictions for twelve days, the patient complained of an uneasy sensation in the arm, and on pricking the skin with a pin, it was found that some pain was experienced. Passive motion was then ordered, and the application continued. The power of motion gradually returned, and at the end of the fourth week he was discharged, using his arm nearly as well as ever.

DR. JOHN VAN BIBBER, OF BALTIMORE.

This author has urged the treatment of paralysis, especially that from traumatic and toxic causes, by means of the *elastic relaxation* of the paralyzed muscles. (*Transactions of the Medical and Chirurgical Faculty of Maryland*, 1875.) He employs an artificial muscle, made of an india-rubber ribbon, so disposed that the affected limb can be moved by the motion of the nearest portion of the body not involved in the paralysis. He maintains that, in all forms of peripheral paralysis, from injury, cold, toxic influence and the like, where, not being able to restore the nerve to its normal condition, if we can, by mechanical means, give the affected muscles, as nearly as possible their natural motions, we prevent any further degeneration in the muscles, and actually improve the condition of the nerve or nerves.

There are two results, he claims, to be derived from this course of treatment: first, the muscular fibre is improved, and its condition rendered more natural; second, through the improvement of the muscles, the distal extremities of the nerves are affected favorably; and, finally, the whole part is placed in the best hygienic condition to receive the influence of the will, as soon as the lesion should commence to disappear.

DR. S. WEIR MITCHELL, OF PHILADELPHIA.*

Punctured wounds of superficial branches of nerves rarely demand special treatment. Occasionally they are caused by the lancet in bleeding, and give rise to troublesome consequences. The older surgeons were accustomed to treat them by cautery at the point wounded; this was effected by placing a morsel of *potassa fusa* in the lips of the cut; while others made an incision above the wound, or isolated it by carrying the knife around it.

* *Injuries of Nerves and their Consequences.* Phila., 1872.

Mr. PEARSON has reported cases of extreme pain from lancet wounds, in which, after every means had been exhausted, the most remarkable ease was afforded by the use of the following liniment;

155. ℞. Olei olivæ, f.℥ ijss.
Olei terebinthinæ, f.℥ iss.
Acidi sulphurici fort., f.℥j. M.
For a liniment.

This was employed repeatedly, so as to cause the most intense inflammation of the skin of the whole arm. Where it failed to irritate sufficiently, he added a larger amount of the acid.

In regard to *electricity* in traumatic palsy, there is but one practical rule in respect to the form of current to be chosen, and that is, whichever will best act on the muscles is the one to be made use of. Muscles which seem only capable of response to galvanism will more slowly, but surely, amend under the use of a good primary current. Whatever form is employed, it is advisable to lessen the power as the muscles regain their excitability. It is often advisable to interrupt the electric treatment for a month, after it has been continued for two or three months. So, also, if neuralgia comes on during the treatment, it is best to pause for awhile.

The value of *massage* in the treatment of all forms of traumatic palsy is very great. If only the skin is to be acted on and excited, the operator should pinch lightly every part of the surface, and move it to and fro over the adjacent parts. The most intense redness may be brought about in this manner. When the limb is wasted, and there is general sluggishness and loss of motion, the skin may first be treated by gently pinching and tapping it; then the joints are to be moved in turn; and, lastly, the muscles to be acted upon by firmly but gently kneading, rolling and working them, gradually increasing the power employed. A sitting by massage should last about an hour, and should be preceded by a local hot bath.

For traumatic neuralgia, *counter-irritation* is but rarely of value, though the formula given above has occasionally given relief. Veratria and chloroform are of no service. *Aconite* is occasionally useful, but must be employed with extreme caution. Acupuncture is of no avail. Hypodermic injections of narcotics are sometimes demanded by the severity of the suffering. They may prove more or less curative in their action, and, at any rate, give the relief needed to try other and more permanent methods of medication.

Morphia is the only narcotic which can be depended on, and its hypodermic use is superior to any other; gr. ¼ is the usual dose to begin with. When its sleep-compelling power is too prominent, we may combine it with atropia.

156. R. Morphiæ sulphatis, gr. ½.
Atropiæ sulphatis, gr. $\frac{1}{30}$.
For one injection.

In this combination the anæsthetic force of the morphia remains unaltered, but the tendency to sleep is greatly diminished.

Electricity and *massage* may both be employed, with some prospects of success, to give relief to the neuralgia.

The form of pain known as *causalgia*, or "burning pain," is best relieved by water dressings constantly applied. It will get well in time.

In extreme cases of traumatic neuralgia, the general result of experience is favorable to resection of the nerve. It should be done rather early than late in the case, and the resection should include a portion of the healthy nerve, but should, of course, be done at the lowest point possible. Measures should be taken to prevent or delay the union of the nerve as much as possible. With these precautions, the operation will often prove successful.

FREDERICK JAMES GANT, F. R. C. S., LONDON.*

This surgeon directs attention to the fact that in some instances an hysterical constitutional condition not unfrequently causes neuralgic and spasmodic twitchings of the stump, especially, but by no means exclusively, in females. In such cases, no operative interference will be of the slightest use. The constitutional treatment is alone of promise. This is often advantageously prefaced by a change of residence. Depressing circumstances must be removed. The quinine treatment continued for a long time, with moderate doses, sometimes proves curative. If a malarial poison is suspected to be present, preparations of iron, the sulphates, in particular, are more effectual. The urine should be tested for albumen, which, if present, will counteract the restorative effects of the iron. When traumatic neuralgia occurs in females, the menstrual functions should be inquired into, and measures be taken to promote their regularity, if they are disordered.

* *Science and Practice of Surgery*, 1878.

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V. SPECIAL FORMS OF WOUNDS.

GUN-SHOT, PUNCTURED AND CONTUSED WOUNDS.—*The Extraction of Balls—Wounds of the Head—Wounds of the Chest—Wounds of the Abdomen—Contusions or Bruises.*

POISONED WOUNDS.—*Charbon (Malignant Pustule)—Dissecting Wounds—Glanders (Farcy)—Hydrophobia—Insect Stings—Poison Oak (Rhus Toxicodendron Radicans)—Snake Bites.*

THE EXTRACTION OF BALLS.

DR. FRIEDERICH ESMARCH, OF KIEL.

In the immediate treatment of gun-shot wounds of all kinds, this distinguished surgeon earnestly discountenances any and all probing or searching for the ball or fragments of bone, clothing, etc. He claims that it is wholly needless, and positively dangerous to examine the wound with the fingers in any manner, as this procedure is certain to introduce septic germs. He urges that, at any rate, the extraction of fragments and balls may certainly be postponed until the patient arrives at the hospital; and even there he would postpone the digital examination until symptoms begin to appear which demand surgical interference, as suppuration, traumatic fever, etc. When these do appear, he would put the patient under the influence of an anæsthetic, and after thoroughly examining the wound, observing all the precautions of the antiseptic method, would endeavor to place the wound under the most favorable condition. If no such symptoms appear, he would assume that no excitants of decomposition had entered the wound, and should be very careful not to disturb it, simply placing an antiseptic covering over the original dressing.

The point of greatest importance in surgical practice for the immediate treatment is the attempt to render all injured bones and joints immovable; and to fix the indications for this method of treatment, it is not necessary to introdnce the finger into the wound. All that remains is the application of the first dressing, and here, from an

antiseptic standpoint, it must be insisted upon that nothing be brought in contact with the fresh wound that can make it worse. Do not examine the wound at all, rather than examine it with unclean fingers. Do not cleanse the wound at all, rather than use unclean water and sponges. Do not dress the wound at all, rather than use unclean material. But everything is unclean, in the strict sense, that is not antiseptic. Every dressing used should be impregnated with carbolic, salicylic or benzoic acid. These should be fastened upon the wound with carbolized adhesive strips.

This first dressing, of course, remains until the patient arrives at the hospital, nor is it to be removed then, unless a bad odor or other symptoms (fever or pain) demand a change of dressing. If these do not appear, we may expect an aseptic healing under the scab, and content ourselves with simply placing an aseptic covering over the outer layer.

A most important inquiry arises, therefore, in the following form: How is a wound to be treated on the field of battle, in order to guard against these pernicious putrefactive influences? This question Prof. ESMARCH has sought to answer by requiring that the wounds shall not be touched by the hands, but closed rapidly by antiseptic plugs, in order to preserve them from the contact of putrefactive agents until they can undergo the LISTER treatment in the hospitals, if necessary. For this purpose, he proposes that every soldier should carry in the lining of his uniform two balls of *salicylated jute*, wrapped up in gauze.

Of all antiseptics, salicylic acid seems best suited for the purpose, not being fluid, retaining its power longest, easy to procure and to stow away; so that, while packing these balls away in the soldier's uniform is a doubtful procedure,.yet the bearers and the surgeons should be supplied with an ample stock. Perhaps room might be found for stowing away in the soldier's knapsack these salicylated plugs.

If the balls are not filled too full, and are made with salicylated gauze and wadding or jute, they will be found of great practical use. By reason of the lasting action of salicylic acid, a wound may in this way be protected from septic influences for several days. Often a sort of healing process will have been already set up, so that the adherent plug will sometimes have to be left in, complete healing of superficial wounds taking place in this way when there is no foreign body

present. In other cases, when the periphery of the wound has been carefully cleansed, the plug is removed under the action of the spray; and after foreign bodies have been sought for, and a drainage-tube introduced, the wound is treated by LISTER'S dressing. The course and final results of cases so treated far surpass anything that has yet been met with in military surgery.

It may be added that the search for the ball, needless at all times, is now generally recognized to be especially fraught with danger in wounds of the thoracic or abdominal cavities. The best and most trustworthy doctrine on this subject has been well expressed in these words by Dr. WILLIAM S. FORBES, of Philadelphia: "The practice of probing gunshot wounds of the great cavities of the body for missiles, or, indeed, for any purpose whatsoever, is entirely at variance with the principle of rest, and is as pernicious as possible."

The above observations are especially important, as leading American treatises on surgery still continue to recommend the early extraction of balls, probing of the wound with the finger, etc.

WOUNDS OF THE HEAD.

DR. STROMEYER.

This eminent military surgeon has endeavored to exclude entirely from military surgery the use of the *trephine* in injuries of the skull. He considers a state of coma from depressed skull "no more an indication for applying the trephine than a comatose state in typhus fever is an indication to rouse the patient by any other means but those which are in accordance with his general state." All active local interference of every kind should be excluded. As soon as the fragments of the bone become loosened by suppuration, the comatose condition ceases of itself. Nothing more is needed than to keep the patient quiet, and a general antiphlogistic treatment, by ice, bleeding, purgative medicine and low diet. An open scalp wound over a broken skull does not produce a great change in the danger of the case. But should the arachnoid cavity be opened by attempts to remove the splinters and fragments of bones, the danger of spreading inflammation of the membranes of the brain, and deep-seated suppuration in

it, is very much increased. On the other hand, when the splinters come away by a limited suppuration at a later period, the arachnoid cavity is closed by adhesions of the dura mater to the brain.

Although these doctrines of the eminent German surgeon have not been received in full by other teachers, a very marked modification in the treatment of skull wounds is noticeable in the recent writings of British surgeons.

Mr. JONATHAN HUTCHINSON has stated his belief that "depression of the bone is rarely the cause of symptoms of compression;" and in enumerating the injuries of the skull and their treatment by trephining, Dr. A. H. CORLEY, of Dublin, makes the following distinction. (*Dublin Journal of Medicine*, 1874):

1. *Simple Fissure.*—For this fracture, the operation should never be performed. True, that, accompanying the injury, there *might* be localized extravasation of blood; or, subsequent to and consequent on it, there might be formation of matter, which may require the application of the trephine; but the operation then has no reference to the fracture.

2. *Simple Comminuted Fracture.*—A fracture may be simple externally, but the inner table may be more extensively fractured, and fragments may wound the dura mater or brain. This condition cannot be guessed at until symptoms of intra-cranial mischief arise; for them, and not for the fracture, we may trephine.

3. *Depressed Fracture.*—He makes no distinction between simple, depressed and compound fracture, as to operative treatment. The latter is more liable to be followed by intra-cranial mischief. As long as no symptoms are present, or, *if present, until we have tried all other means of removing them,* we should not operate. If obliged to interfere, we do so with little hope, as the symptoms are most likely to own an origin other than the depressed bone.

4. *Depressed Fracture, Comminuted,* including that which is known as "punctured" fracture, such as may be produced by the stab of a pointed weapon, kick of a horse or blow of a sharp stone. In many cases of this description, it may be necessary to operate at once, *whether symptoms be present or not.* If the surgeon has reason to believe that, in a punctured fracture, spiculæ of bone are impinging on the surface of the brain and lacerating it, he is bound to interfere at once.

The treatment of *punctured fractures* here advocated is still more strongly urged by Mr. DAVIES COLLEY, in *Guy's Hospital Reports,*

1877. He lays it down as an imperative rule in such wounds, *trephine at once*, without waiting for symptoms of irritation or compression.

DR. G. H. MACLEOD, OF GLASGOW,

Professor of Clinical Surgery in the University, urges strongly the avoidance of active interference in wounds of the head, especially in children. He teaches that the simpler the treatment of these cases the better. Active interference is most injurious. The softness of the bones, their elastic connection, and the more free expansion allowed the brain in young children, save them from much of the risk run by adults. Even in cases of severe fracture, with depression, non-interference is the best procedure. The absence of the sinuses and of diploe allows of the brain being easily reached by a blow; but still, if time is only given, (supposing always that fragments are not actually driven into the brain,) he unhesitatingly believes that these young patients have a much better chance by being let alone than from any operation. In a patient aged twelve, a considerable part of the left parietal bone was wholly removed by the blow from a cart-tram falling on him. The brain was freely exposed, yet by simple treatment and non-interference—beyond guarding him against sources of irritation, and attention to his general health—he made a perfect and uninterrupted recovery.

DR. DAVID W. YANDELL, OF LOUISVILLE.

This surgeon has called attention to the value of *bromide of potassium* in injuries to the brain. (*Louisville Medical News*, July, 1876.) It should be given in full doses (3j) when symptoms of compression arise, especially when secondary to injuries of the head. He believes that its judicious and regular use will not unfrequently obviate the necessity of resorting to the trephine.

PROF. D. HAYES AGNEW, OF PHILADELPHIA,*

recommends, as general rules in wounds of the head, to employ stimulants cautiously until the danger of collapse has passed; then ice to the head, veratrum viride, perhaps general bleeding, to deter excessive reaction. The diet at first should be restricted. He adds: "The importance of the use of mercury as an antiphlogistic cannot be over-

* *Treatise on Surgery*, Vol. I., 1878.

rated, and it should be given in all cases where, from the severity of the injury, there is reason to fear inflammatory sequences."

WOUNDS OF THE CHEST.

UNITED STATES ARMY.*

Local Treatment.—To secure *rest*, position and the broad chest bandage are the most generally applicable measures in injuries of the thorax. In profuse primary hemorrhages, cold applications to the chest, as ice, ice-water, etc., are useful. If the bleeding point can be discovered, it is better to arrest it by uncovering the artery and ligaturing it. When it is impossible to reach the source of the bleeding, it is better to close the wound, and promote the occlusion of the bleeding vessel by compression and general means. All superficial wounds should be closed with a view of promoting early adhesions. In extensive incisions and lacerations, it will be well to use sutures or *serres-fines;* but in coughing and inadvertent motions of the patients, they often tear out, and usually a simple dressing, with adhesive strips, covered with lint or oakum, and a light bandage, will suffice. In many cases of penetrating wound, surgeons have used with advantage, to support the injured side, broad strips of adhesive plaster made to encompass two-thirds of the chest, and fenestrated at the wound.

General Treatment.—The use of *venesection* in these wounds, though traditional and still recommended by various authorities, must be abandoned. Recent and extensive experience condemns it as always unnecessary and occasionally very harmful. On the other hand, *opium* is a most important pharmaceutic means. Dr. NEUDÖRFER justly remarks: "In cases of injuries of the chest, as well as of the abdomen, opium is to be considered as possessing specific powers, not to be replaced by any narcotic whatever." The practitioner should not forget that its effects upon the system are augmented after profuse loss of blood, and therefore he must be guarded in its administration under such circumstances. A frequent practice was to dust the salts of morphia on the surface of wounds, and it is reported that this method has the additional advantage of allaying promptly the local pains, as

* *Medical and Surgical History of the War of the Rebellion.*

well as the general nervousness and trepidation, which are so marked features of chest wounds.

Calomel, which has often been employed for its supposed control over the inflammatory process, especially in traumatic pleuritis and pneumonia, has steadily declined in favor of late years in these injuries, and probably should be discarded altogether. At most, the mercurial preparations may be called for to combat the tendency to exudations in carditis, and to promote the absorption of serous effusions in the pleural cavity. It is of importance to maintain the blood in such a condition as to favor its coagulability, on which the natural reparative process depends. As depressants of the circulation, and to control traumatic pneumonia, use has been made of *antimonials, veratrum viride, aconite* and *digitalis;* but the general result credits none of these drugs with special importance in the treatment of these injuries. The cautious use of ammonia and brandy are requisite in cases attended with great prostration from the outset. In the latter stages, alcoholic stimulants and carbonate of of ammonia, in conjunction with concentrated nutriment, are important adjuncts to the restorative treatment. In cases of traumatic pneumonia, large *blisters* are often employed, even in the early stages. It must not be forgotten, however, that they often produce much suffering, interfere with auscultation and percussion, and sometimes are followed by gangrene.

All these means are subsidiary to opium, the operative treatment, the rigid enforcement of rest, the regulation of the air and of the *diet.* The latter should be severely restricted at first, and though later nutritious food should be allowed, it should long be of liquid form and easy of assimilation. The error is often made of allowing solid animal food at too early a period.

DR. DAVID W. CHEEVER, BOSTON.*

This surgeon writes that in penetrating gun-shot wounds of the chest, three methods of treatment are open to us:

First. To seal up the wound, a mode recommended in 1863 by Dr. BENJAMIN HOWARD, U. S. A. It consists in paring the edges of the wound, if uneven, then drying it, and placing upon it a few shreds of charpie arranged crosswise; a few drops of collodion are poured on these, so as to saturate them and form a sort of collodion cloth;

* *Medical and Surgical Reports of the Boston City Hospital*, 1877.

when dried, additional coats of collodion are painted on, until the wound is hermetically sealed. This mode, according to Dr. CHEEVER, "has now scarcely a single advocate." *

Second. To pursue a strictly expectant course, and not tap or open more freely the pleura, until pneumo-thorax hemorrhage or effusion calls for interference.

Third. To lay open the tract of the wound, and make at once a free and permanent pleural opening. Dr. CHEEVER gives a case where a rib was broken by the entrance of a piece of iron, and the pleural cavity was penetrated. The wound was freely slit up, the pleural cavity more widely opened, and a small fragment of splintered rib extracted. The wound was left open. A large effusion of serum began to be discharged from the wound. A moderate pneumonia set in, and the discharge became puriform. The wound of the chest wall was kept sedulously open with tents, and the pleural cavity syringed out daily with disinfectants, through a long, elastic catheter. Adhesions of the lung to the thorax took place, the cavity lessened, and finally the wound closed and the patient convalesced. Pleurisy, pneumonia, empyema and adhesion went through their stages with an open wound, instead of in a closed cavity.

One year later this patient again presented himself at the hospital. Respiration was nearly perfect on the injured side. He was strong and active, and, what was most interesting, the side of the thorax had not collapsed and shrunk as it does in chronic pleurisy, after the effusion is absorbed. During the course of the diseased processes, atmospheric pressure had been equal both inside and outside the thorax.

The lung did not collapse when the pleural cavity was freely opened. This opening was about opposite the lower third of the axilla. Dr. A. H. SMITH'S experiments prove that collapse of the lung does not take place if an opening is made in the side of the thorax opposite the middle of a lobe, but only when the opening is near the free edge of the lobe. In the living animal the lung never collapsed entirely when only *one side* was opened. It will be noted that in this case the lung tissue was not implicated.

* It will be found very fully discussed in the *Medical and Surgical History of the War of the Rebellion*, Surgical Vol. I., p. 497, *et seq.* The verdict is against it.

WOUNDS OF THE ABDOMEN.

UNITED STATES ARMY.*

To restrain inflammation within salutary limits in abdominal wounds, absolute *rest* is the most important indication, the patient being suffered neither to be moved nor to move himself; therefore he should be permanently treated as near as possible to the spot where he has received the injury. "Every rod such patients are transported adds to the formidable peril they have already to encounter." Food and drink, save a little ice or cold water, are to be absolutely interdicted at first, and then the blandest nutriment, such as milk, may be sparingly allowed. The early employment of purgatives must also be absolutely forbidden. The *position* of the patient is of importance. If there is a single wound, the patient should lie in that posture that will place the orifice downward, and favor the approximation and adhesion of the viscera to its edges. If the abdomen is perforated, it will usually be best to make the orifice of exit dependent. When there is evidence that a viscus is wounded, the parietal wound must always be left open, except in cases in which enteroraphy is practiced. Local depletion and fomentations, often employed, are of no value; but there is reason to believe that extended and protracted applications of ice over the entire abdomen occasionally exert a decided influence in moderating the inflammation. The majority of surgeons esteem moderate compression by a circular bandage useful. If the stomach and small intestines are divided, there is no reasonable presumption that fæcal extravasation, and consequent hyper-acute generalized peritonitis, can be averted, unless by operative interference. Under these circumstances, therefore, the surgeon should enlarge the wound, carefully cleanse the cavity, and unite the solutions in continuity in the wounded viscus by sutures.

Of all drugs, *opium* is the only one which need be mentioned. It is the main resource to secure the indispensable rest of the bowels and nervous system. Its alkaloids may be administered hypodermically, or, as an excellent means in this class of injuries, by suppositories. The *diet* must be liquid in character, concentrated and very sparing. The use of mercury in any form is needless and dangerous. Bloodletting is wholly unnecessary.

* *Medical and Surgical History of the War of the Rebellion.*

DR. J. Q. A. HUDSON, OF CINCINNATI.

This writer, in a careful study of the indications for treating *incised wounds of the stomach*, such as not unfrequently occur from a stab, (*Clinic*, Jan., 1872,) states that the first step is to apply a suture to the gastric wound, if it is easily accessible through the parietes, and the cut is more than half an inch in length; if less than this, it is not necessary, and it is rarely or never necessary to enlarge the external wound in order to reach that in the gastric parietes. When the latter cannot be reached, and no effusion exists, the external wound should be closed by suture, and adhesive strips, compresses and bandages applied, to aid in securing, as far as may be, an immobility of the parts. Where there is an effusion in the neghborhood of the wound, the external wound, if it has been closed, should be opened, and, by position and moderate compression, an attempt be made to cause an escape externally of the foreign matters. To effect this, it may be necessary to enlarge the external wound.

In regard to *position*, the patient should be placed so that he can secure absolute rest, with the abdominal muscles fully relaxed; and if practicable, the stomach wound should be kept within the lips of the parietal wound, or near to it, so that, if effusion occurs, there may be an opportunity for egress of the effused liquids.

The *diet* is of the utmost importance. There should be absolute abstinence from all forms of food by the mouth for several days. Nutritive injections may be given, and thirst be quenched by the very limited allowance of small pieces of ice. When the patient commences to take food, it should be in a concentrated liquid form. Very gradually, and in very small quantities, morphia, hypodermically, or opium in suppositories, is demanded to allay pain and nervous agitation. Enemas may be used, if necessary to secure alvine evacuations. Dr. HUDSON adds that general and especially local blood-letting may be demanded to combat inflammation, (a recommendation of doubtful utility, according to military experience.)

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CONTUSIONS OR BRUISES.

PROFESSOR THEODOR BILLROTH.*

The treatment of contusions without open wounds, has for its object the conduction of the process to the re-absorption of the extravasation.

If called to a contusion which has just occurred, the indication is to correct, at once, the subcutaneous hemorrhage. This is best done by *compression*. In North Germany, when a child falls on its head or knocks its forehead, the mother at once presses the handle of a spoon on the injured part, to prevent the formation of a blood-bruise, or blood-blister, as it is called. This is a very suitable popular remedy. By the instantaneous compression, the further escape of the blood is hindered, as also its collection at one point. The ecchymosis just forming is dispelled, and the blood dispersed into the surrounding tissue, when it can readily be absorbed. This object we can attain if the wound is seen early, by applying a compress to the part, secured by a firm bandage.

But as we rarely are called so early, we more frequently have to attack the blood extravasation after it has partly formed.

The use of *cold*, in the shape of rubber bags, or bladders filled with ice, or of cold lotions, is a frequent remedy, and occasionally successful. But the means that most aids the re-absorption of blood extravasation, is again *compression* and *rest* of the parts. Hence it is best to envelope the extremities in moist bandages, and over them apply wet cloths, which are to be renewed every three or four hours.

If, by their treatment, a circumscribed extravasation does not change considerably in the course of a fortnight, the swelling should be painted once or twice daily, with dilute tincture of iodine:

157. ℞, Tincturæ iodinii comp.,
Alcoholis, āā partes equales.
Compression should be continued with a suitable bandage.

In spite of this, should the surface become hot, and the skin red and painful, we must expect suppuration. In order to hasten this change, which cannot then be avoided, we may apply warm fomenta-

*Surgical Pathology and Therapeutics, 1871.

tions, and quietly await the further course. Unless the symptoms are threatening, such as high fever and chills, it is best calmly to await perforation by the natural process of the thinning of the wall of the abscess, and not to hasten it with the bistoury.

RÉSUMÉ OF REMEDIES.

Acetum. A lotion of vinegar and common salt is a popular and useful application to bruises. With muriate of ammonia and alcohol, it forms one of the most esteemed discutient lotions. (F. 21.)

Alcohol is one of the most useful of all lotions to prevent a blackening from following a blow. The part should be bathed with it, and cloths freely wet with it, constantly applied. With equal parts of white of eggs, it is a soothing application to bruised parts which are excoriated.

Alumen, in solution, acts as an astringent discutient.

Ammonii Chloridum is one of the most energetic sorbefacients known. It may advantageously be combined with camphor, soap, or alcohol. (F. 28.)

Aqua. Water dressings are often called for.

Arnica. Much difference of opinion prevails in regard to the value of arnica. Dr. LOEFFLER and many other German writers esteem it highly. The hot infusion is said to act more surely than the tincture, and the flowers than the root. Its best use is after the first effects of the injury are over. A convenient formula is:

158. ℞. Tincturæ florum arnicæ,
Aceti, āā f℥j.
Aquæ camphoræ, f℥vj. M.
For a lotion.

Bryonia is much used by pugilists, etc. (See page 96.)

Camphora. When parts are excessively contused, they generally require stimulating applications, one of the best of which is spirits of camphor.

Capsicum. A strong tincture of capsicum, repeatedly painted on the part, is said to dispel the discolorations from bruises, often quite rapidly.

Hypericum Perforatum. The medical properties of the St. John's wort deserve more attention than they have received from physicians. The *oleum hyperici*, once officinal, now better known as *red oil*, is still largely used and justly esteemed in country districts as a sovereign application for bruises.

Iodinium is a valuable discutient. (See above.)

Plumbi Subacetas. Goulard's extract, properly diluted, is an exceedingly useful cooling lotion. It may be united with conium (F. 27), with alcohol (F. 23), or with ammonia, as for example:

159. ℞. Liquoris ammoniæ acetatis, f.℥j.
Liquoris plumbi subacetatis, f.℥iss.
Aquæ, Oj. M.
For a lotion.

Sodii Boras is a useful refrigerant addition. (F. 25.)

Sulphurosum Acidum is esteemed by some. (F. 32.)

CHARBON (MALIGNANT PUSTULE).

The latest treatment of this infection in France, where it is not uncommon, may be illustrated by the following case reported to the Parisian Academy of Medicine by M. DAVAINE, in October, 1873. A young man, a tanner, having become infected from some skins prepared in his shop, noticed an anthracose œdema of the palpebræ. This affection is usually considered fatal in that country, hence a consultation was called. M. CÉZARD, at the suggestion of M. DAVAINE, treated the case by hypodermic injections of iodine solution of $^1/_{500}$. The patient soon recovered. The same treatment was also adopted with success in subsequent cases.

The germs of this disease, (which have been shown to be the species of bacillus, the *bacillus anthracis*,) when it is epidemic among animals, may be destroyed by sprinkling the forage or the pastures with $^1/_{50,000}$ solutions of sulphuric acid. In using the anti-virulent treatment, the system must also be well supported by stimulants, among which the carbonate of ammonia in large doses is the best. In using iodine, twice its weight of iodide of potassium is to be added, to increase the solubility and diminish its irritating properties. In extreme cases, the intravenous injection of iodine may be resorted to without hesitation. The treatment of these diseases by the actual cautery, or by cauterization with concentrated solutions of sublimate, is not in accordance with the progress of science, and is very inefficacious.

Dr. ESTRADÈRE treats malignant pustule very successfully by the administration of *carbolic acid* internally and externally.

Dr. BOMPAIRE recommends, in the *Montpellier Médical* for Jan., 1877, the following treatment:

1. In slight forms of malignant pustule, when the surgeon has been called in at the beginning, a simple cauterization with Vienna paste is sufficient, and Dr. BOMPAIRE believes that it stops the disease in the majority of cases.

2. When the tumor has acquired a certain development, when the general symptoms have shown themselves in the usual way towards the fourth or fifth day, cauterization should be preceded by a crucial incision through, as far as possible, the whole depth of the slough.

3. Finally, when medical assistance has been called in late, when the malignant pustule has reached the seventh or eighth day, and

œdema has invaded a large surface, action must be taken even when the general symptoms are very serious, and life itself seems in danger. Observation shows that in these cases the excision of the slough, combined with vigorous cauterization with sulphuric acid, may be of great service and save the patient. Antiseptics, such as carbolic and salicylic acid, and tonics, should be administered internally.

DISSECTING WOUNDS.

Those who are called upon to perform *post-mortem* examinations in cases of acute internal inflammations should have their hands well greased or oiled, as the poison may pass through the unbroken skin unless protected; and any scratches or abrasions should be covered with adhesive plaster. If they are unlucky enough to prick or cut the hand, the first thing is to tie a ligature tightly around above the wound, and then squeeze it so as to encourage a copious flow of blood. Next it should be well washed and sucked for a long time.

Should unpleasant symptoms supervene, rest, country air, purgation and generous living are essential. Stimulants are demanded early and constantly. Abscesses must be encouraged by fomentations and opened by early incisions.

In regard to *cauterizing* dissection wounds, surgeons differ. Mr. T. HOLMES and Prof. GROSS are of opinion that undoubtedly this measure gives more security against absorption of the virus. Mr. ERICHSEN thinks it is better not to apply caustics. If any be employed, he prefers a drop of pure nitric or carbolic acid. The nitrate of silver can never do much good.

It should be remembered that fluids effused into the peritoneal and pleural sacs are decidedly the most virulent.

PROF. THEODOR BILLROTH.

For the first treatment of the part poisoned with cadaveric matter, this author advises that cold water be let run on the wound for a long time, and not to check the bleeding, if there is any. From a considerable experience on himself and his students, he considers cauterization *immediately after contact* not advisable. But if later the parts around the wound redden, the part may be cauterized with nitrate of silver or

fuming nitric acid. This is very painful, but it acts well. Not unfrequently pus forms again under the slough; in this case, the slough must be removed and the spot again cauterized; and this is to be repeated until no more pus forms under the slough.

Should lymphangitis begin, the arm should first of all be placed on a splint, to keep it quiet, and the appropriate treatment for lymphangitis be instituted.

If indurated lymphatic glands remain after infection with cadaveric poison, daily *warm baths* are the best means for promoting the excretion of the poison.

DR. THOMAS H. TANNER.

After the first attention to the wound, according to usual surgical principles in such cases, the physician must attend to the inflammation of the tissues and absorbents, and the asthenic symptoms which follow. To support the strength, *quinine* in large doses is demanded. When there is great exhaustion, with low, muttering delirium and restlessness, it may be advantageously combined with ammonia.

160. ℞.	Tincturæ quiniæ,		f.ʒj.	
	Glycerinæ,		f.ʒvj.	
	Spiritûs ammoniæ aromatici,			
	Spiritûs ætheris,	āā	f.ʒiij.	
	Extracti opii liquidi,		♏xxx.	
	Infusum cinchonæ flavæ,		ad f.ʒviij.	M.

One-sixth part every six hours.

In order to neutralize the poison absorbed into the system, various writers recommend the *sulphites*.

161. ℞.	Sodii sulphitis,	℈ij–iij.	
	Infusi cinchonæ,	f.ʒj.	M.

This amount three or four times a day

The sulphite of magnesia may be employed in doses of ℈j–ij, dissolved in one or two ounces of water, every three or four hours. It is richer in sulphurous acid than the sulphite of soda, is more stable, and has a much more agreeable taste.

The *chlorate of potash* has also been recommended in this form of blood-poisoning.

GLANDERS (FARCY.)

MR. T. HOLMES.

This surgeon recommends that if any one handling a horse supposed to be glandered, gets any of the matter into a crack in the skin or on the naked hand, the same prompt and decisive measures must be adopted as in serpent bites or those of rabid animals. When the disease breaks out, the indications are, first, to disinfect and deodorize the discharge; and, secondly, to support the patient through the fever. For the former purpose, the following *creosote lotion* may be used:

162. ℞. Creosoti, ♏ xxiv.
Acidi acetici, ♏ xlviij.
Aquæ, f.℥ vj. M.

Turpentine embrocations are also valuable. The second indication is to be carried out by free and early incisions, and by the judicious use of stimulants and tonics.

MR. ERASMUS WILSON, OF LONDON.

For the eruption accompanying glanders, this author recommends:

163. ℞. Argenti nitratis, gr. xx.
Etheris nitrici, f.℥ j.
Apply locally.

When the nostrils are affected, the following may be used:

164. ℞. Zinci chloridi, gr. ii–vj.
Aquæ, f.℥ j. M.
For nasal injection. Use night and morning, taking care that none of it is swallowed.

HYDROPHOBIA.

The current statement in surgical text-books is that in hydrophobia all remedies are unavailing; that as soon as the symptoms declare themselves, hope may as well be given up; and that, practically, a euthanasia is as much as medical art, at its best, can accomplish.

On the other hand, there have been reported by excellent authorities, at various times, cases having all the symptoms of hydrophobia, and

following the bite of a rabid animal, which have recovered under treatment. That all of these were simply manifestations of terror, hysteria or mimetic nerve disease, is a pure assumption by writers who never saw the cases. The opinion, therefore, is allowable and probably correct, that a limited number of cases of hydrophobia have been cured, and that the disease, in a few instances, either has a tendency to recover, or else may be brought to a favorable termination by appropriate remedies.

The correct opinion on this subject is expressed by the learned and eminent Dr. JOHN MASON GOOD, in the following words, quoted in HOLMES' *System of Surgery:*

"It is highly probable that a spontaneous cure may be occasionally effected by the strength of the constitution or the remedial power of nature alone. The fact appears to be that the disease requires about six or seven days to run its course, at the expiration of which period the system seems to be exonerated, by the outlet of the salivary glands, of the poison with which it is infected. And hence, if by any means it be able to carry itself through this period without being totally exhausted, it will obtain a triumph over the disease. Our grand object must therefore be to keep the patient alive, and to prevent a fatal torpitude in the sensorium for a certain number of days, at any expense of stimulants or of subsequent debility." (*Study of Medicine*, Vol. III, p. 303.)

MR. YOUATT.

The preventive treatment recommended by this eminent veterinarian has been strongly endorsed by such surgeons as Dr. J. MASON WARREN, of Boston, and NATHAN R. SMITH, of Baltimore. He says:

"The wound should be thoroughly washed and cleansed as soon as possible after the bite is inflicted; *no sucking* of the parts, as is advised by many for the purpose of extracting the poison, as the presence of a small abrasion on the lips or the interior of the mouth would most assuredly subject the parts to inoculation. If the wound is ragged, the edges may be taken off with a pair of sharp scissors. The wound must then be thoroughly cauterized with *nitrate of silver*, being sure to introduce the caustic into the very depth of the wound, so that it will reach every particle of poison that may have insinuated itself into the flesh. If the wound is too small to admit of the stick

of caustic, it may be enlarged by the knife, taking care, however, not to carry the poison into the flesh cut, which can be avoided by wiping the knife at each incision. Should the wound be made on any of the limbs, a bandage may be placed around it during the application of these remedies, the more effectually to prevent absorption by the veins. Nitrate of silver is a powerful neutralizer of specific poison, and the parts will soon come away with the slough; no dressings being necessary, except, perhaps, olive oil, if there should be much inflammation of the parts. If the above plan be pursued, the patient need be under no apprehension of the result, but make his mind perfectly easy on the subject."

DR. SHINKWIN, M. R. C. S. E., SURGEON TO THE CORK INFIRMARY, IRELAND.

This writer, in a recent treatise on the disease, (*Dublin Medical Journal*, Feb., 1876,) reviewing the remedial agents employed in the treatment of hydrophobia, enumerates no less than 228 vegetable substances; and under the heading of "acids, alkalies, salts, bases," etc., 46; besides a host of such nauseous doses as "pounded ants, badger soup, the excrement of a calf, the brains and comb of a cock, the eyes of a crab, coral, tail of a shrew, shells of the male oyster," etc., etc. The preliminary treatment of the wound should be that hereafter given for the bites of venomous serpents.

"In all cases of bites caused by dogs, wolves, cats or foxes," observes Dr. SHINKWIN, "the parts should, if possible, be deeply and completely excised, and the cut surfaces freely, even brutally, cauterized." With regard to the cauterizing agent, he thinks that "a preference should be given to those that are fluid or deliquesce rapidly, as their action is more evenly diffused over the entire surface than when nitrate of silver or the red-hot iron is used." And he is of opinion that "in all cases, anæsthesia should first be produced by chloroform, as the action of the caustic on the recent and often extensive cut surface often produces a prolonged and even dangerous agony." He states that if a person has been bitten by a dog in whom there are good reasons for expecting madness to exist, excision, or even amputation of the part, should be performed, if this can be done "without endangering life or depriving the individual of a member essential to the attainment of his livelihood."

Difference of opinion appears to exist as to the utility of excising

the cicatrix. Some consider that the poison of hydrophobia circulates in the blood, and that it would be as reasonable to suppose we could prevent the effects of syphilis—another form of chronic blood-poisoning—by excising the cicatrix of a Hunterian chancre as destroy the poison of hydrophobia by excising the cicatrix left by the wound.

"When the disease has been developed," says Dr. SHINKWIN, "the treatment by *transfusion of blood* appears to be the most rational and the most likely to succeed." He mentions that this operation was practiced by Dr. EYE, of Suffolk, in 1792, who bled a man aged seventeen until blood no longer flowed, and then transfused into him blood from two lambs, and the patient completely recovered.

MR. G. D. M'REDDIE, OF WANSTEAD, ENGLAND.

This surgeon reports (*Indian Medical Record*, 1876,) the cure of a case of hydrophobia by rapid salivation induced by the fumes of calomel. The fumigation should be conducted as follows: The patient is to be undressed, seated on a cane-chair, and the whole body up to the neck enveloped in blankets. Under the chair a Langston Parker's lamp (Savigny) is placed. In this a spirit-lamp, holding the required amount of spirit, is protected in a cage, on the top of which is a receptacle for the calomel (twenty or thirty grains) and a saucer for water. The flame beneath boils the water and volatilizes the calomel. Moderate salivation, which is all that is required, may be induced in a quarter of an hour, and judiciously repeated if the symptoms seem benefited by the treatment.

DR. GRYMZALA, OF RUSSIA.

Dr. GRYMZALA, of Krivo Ozero, Podolie, (*Journal de Thérapeutique*, 1876,) claims to have successfully treated ninety-nine cases of bites by hydrophobic animals with the leaves of *Xanthium spinosum*. This drug possesses sudorific, sialogogue, and slight diuretic properties. The dose for an adult is 60 c. g. of dry powder of the leaves, repeated three times a day; half the quantity is sufficient for children under twelve years.

A fluid extract of *Xanthium spinosum* is now manufactured, and can be had from leading druggists in the United States.

DR. JOHN IMRAY, DOMINICA, WEST INDIES.

165. ℞.	Chlorali hydrati,	gr. xxx.	
	Liquoris opii sedativi, (B. Ph.,)	gtt. x.	
	Amyli,	q. s.	M.

For one injection. Repeat every hour until sleep is produced.

This author says (*Medical Times and Gazette*, May, 1876,) the power of these combined drugs in controlling and repressing spasmodic action is very remarkable. It appears as if a power stronger than that of the disease forcibly represses the morbid action, like a heavy weight placed on a spring, and if the pressure yields, the spring begins to rise; but being constantly maintained, the morbid nervous phenomena gradually give way, and finally the disease is vanquished.

Dr. MAXWELL (*Indian Journal of Medical and Physical Science*) recommends the following plan when premonitory symptoms are first observed 1. That the original cicatrix be freely laid open, and suppuration from it speedily and freely produced and maintained for several months. 2. The nerves or nerve leading to the part are to be divided without delay, the more remote from the wound the better. 3. Free perspiration by the hot-air bath. 4. Bleeding from the arm to syncope in robust persons.

RÉSUMÉ OF REMEDIES.

Amyl Nitrite. The inhalation of this powerful anti-spasmodic was used in a case reported by Dr. CLEEMAN, of Virginia, with much benefit, but was not carried out, owing to the opposition of the patient.

Cannabis Indica is asserted by Professor POLLI, of Milan, to be the best palliative, though not curative.

Chloroformum is considered by Dr. HENRY HARTSHORNE to be the most satisfactory agent to promote the euthanasia, which he believes to be the extent of our ability in such cases. He administers it freely by inhalation all the time till death ensues.

Curara, see Woorara.

Hydrargyrum Chloridum Mite. Mr. MCREDDIE reports a cure by calomel fumigations. (P. 171.) Another cure is reported in the *American Journal of the Medical Sciences*, Vol. XXXIX, p. 96, from drachm doses of calomel. It is reported by Dr. LIGGET. Another cure by the same means is recorded in the *Lancet*, Vol. VI, p. 213, American edition. This combination of authorities gives fair grounds for the belief that in some instances mercurials are really efficacious, and should encourage their further use.

Jaborandi. As the poison appears to pass out of the system by the salivary glands, the use of this powerful sialagogue is suggested.

Oxygen. Inhalations of oxygen have been found to relieve greatly the cyanosis and spasms. Dr. LASCHKEWITSCH (*Gazette Médicale*, Paris, 1872, No. L,) has administered inhalations of oxygen to a peasant who, ten weeks before, had been bitten by a mad wolf. The tetanic muscular contractions ceased, the cyanosis disappeared, and the exacerbations of violence gave place to a quiet, gentle condition. Notwithstanding the fatal result, (due, probably, to the inattention of the nurses, who discontinued the oxygen inhalations,) the author recommends the use of this agent to the attention of the profession.

Pepsina, if applied immediately to the wound, is said to have the power of neutralizing the poison of rabies. (Dr. A. V. FORGEY, *Cinn. Lancet*, June, 1878.)

Scutellaria has a popular reputation deserving of some consideration.

Woorara. In the *American Journal of the Medical Sciences*, July, 1876, Dr. B. A. WATSON, of Jersey City, N. J., reports a case by hypodermic injections of strychnia and woorara, a method which in other hands has failed. But generally the dose used has been too small. From one-fourth to one-half grain should be exhibited hypodermically every three hours, to have any positive effect. The following formula is proposed by Mr. Moss, as best meeting the requirements of the case:

HYPODERMIC INJECTION OF CURARA.

166. ℞. Curara, gr. j.
Water, ♏ xij.
Dissolve; let the solution stand forty-eight hours, and filter.

Using this solution, two-thirds, a half, third or quarter of a grain may be given in a whole number of minims. Of the other strengths likely to suggest themselves, viz., one in ten and one in fifteen, the first would only allow of a tenth, and a half a grain; and the second, of a fifteenth, a third and two-thirds of a grain being given in the same way. The accounts of the use of curara seem to indicate that the dose is from a quarter to half a grain.

Caution.—Curara requires to be handled with the utmost care. It should not be allowed to come in contact with a fresh cut or scratch. Two good rules would be: never to powder it in the dry condition, and never to touch it with the naked fingers.

Xanthium Spinosum is a recent aspirant for favor. (See page 171.)

EXTERNAL REMEDIES.

The Vapor-Bath. By various authors the use of the vapor-bath has been recommended as an efficient preventive. Dr. BUISSON, of Paris, relates that in his own case he succeeded in aborting the symptoms of an acute hydrophobic attack by a vapor or Russian bath. He recommends that it should be rapidly raised to a temperature of 57° Cent., then gradually to 63° Cent. (*Medical and Surgical Reporter*, April, 1869.) A case has been reported by Dr. HORACE MANLEY, of New York, which both the symptoms and history identify as one of undoubted hydrophobia, which was completely cured by bleeding to 30 ounces and placing for four hours in a vapor-bath heated to 140° Fah. (*Transactions of the American Medical Association*, Vol. IX., p. 335.)

Trachcotomy has been very strongly urged in this malady by Dr. WASHINGTON ATLEE, of Philadelphia. (*Trans. Am. Med. Assoc.*, Vol. IX, p. 220.) He believes the spasms of the glottis, the constriction of the chest, the difficulty of deglutition, the sense of suffocation and the intense anxiety and distress would vanish, and the administration of remedies and the taking of drink be rendered comparatively easy. Professor PACCIANTI, of Pisa, performed this operation in a case, but the patient died with symptoms of paralysis of the muscles of respiration.

INSECTS, STINGS OF.

A careful examination of the wcund should be made with a pocket lens, and any remnant of the sting be removed with a pair of fine-pointed forceps. An application of some soothing or neutralizing fluid should then be made by dipping in it cotton-wool and applying to the part. Many substances are popular for local use. *Spirits of ammonia, laudanum, vinegar, tincture of camphor, eau de cologne, lime water, ether,* have been employed. If there is prostration, stimulants should be exhibited. When the mouth or throat is the part stung, there is danger of spasms of the rima glottidis. Warm flannels should be applied to the neck, and inhalations of warm ether employed.

The *oil of lobelia* is said to give prompt relief. A solution of *acetate of lead* is effectual; also *dilute carbolic acid,* as:

167. R. Acidi carbolici, f.℥j.
Olei olivæ, f.℥j. M.

RHUS TOXICODENDRON.

The poison oak, *Rhus toxicodendron,* and the poison ivy, *Rhus toxicodendron, var., radicans,* are so common over the greater portion of the United States, that cases of poisoning from them are exceedingly frequent.

The irritant action of the toxicodendric acid may be prevented by rubbing thoroughly the hands with soft soap or other active alkali before touching specimens. Of local applications, Professor J. C. WHITE, of New York, recommends the following:

168. ℞. Hydrarg. chlor. mitis, ʒj.
Aquæ calcis, Oj. M.

Applying as an evaporating lotion to the affected parts for half an hour or an hour at a time, two or three times a day.

Or use the following in the same manner:

169. ℞. Hydrarg. chlor. corrosivi, gr. j–ij.
Aquæ, f.ʒj. M.

Or,

170. ℞. Plumbi acetatis, ʒj.
Aquæ, Oj. M.

Employ as cold lotion to the part.

Dr. FREDERICK HORNER, of Virginia, has found prompt and satisfactory results from the yellow wash:

171. ℞. Hydrarg. chlor. corrosiv., gr. xx.
Aquæ calcis, f.ʒ v. M.

Shake well, and apply with soft pieces of linen.

(This should not be used on children, the sublimate being liable to absorption; and all sublimate solutions should be applied with the utmost caution, as they often irritate extremely.)

Dr. S. A. BROWN, U. S. N., recommends as a specific the following. (*N. Y. Medical Record*, 1878):

172. ℞. Brominii, gtt. x–xx.
Olei olivæ, f.ʒj. M.

Rub gently on the affected part three or four times a day.

Dr. JAMES S. BAILEY, of New York, has found the following prescription to cure generally at the first trial. (*Medical and Surgical Reporter*, April, 1871):

173. ℞. Hydrarg. chlor. corrosiv., ʒss.
Aquæ destill., f.ʒ iij.

Mix and add:

Ammoniæ muriatis, ʒj.
Potassii nitratis, ʒij. M.

Apply three times a day with a camel's-hair pencil, then discontinue and use the *Unguentum hydrargyri*.

Other applications which have been commended are:

174. ℞. Spiritûs ætheris nitrici dulcis, q. s.

Apply freely to the parts after breaking the vesicles.

175. ℞. Aluminis, ℥ij–iv
Aquæ, f.℥ vj. M.
Use freely as a lotion.

176. ℞. Cupri sulphatis, ℥j.
Aquæ, f.℥ vj. M.
Use as a lotion.

177. ℞. Sodii bicarbonatis, q. s.
Powder thoroughly and rub well the parts, or use it in strong solution. An excellent application.

178. ℞. Boracis, ℥j.
Glycerinæ, f.℥j. M.
Apply to the parts.

179. ℞. Aquæ ammoniæ, f.℥ij.
Olei olivæ, f.℥j. M.
Use locally.

DR. EDWARD HARTSHORNE, OF PA.

180. ℞. Extracti fluidi serpentariæ, q. s.
To be painted upon the eruption. It appears to kill it at once.

Dr. TYDINGS, of Maryland, has found the following very efficacious. (*Maryland Medical Journal*, Dec., 1878):

181. ℞. Extracti belladonnæ alcoholici, ℥j.
Aquæ, f.℥iij. M.
Apply to the parts with a brush or feather.

Internal remedies are not very generally exhibited. Prof. L. P. YANDELL, JR., of Louisville, Ky., states (*Louisville Medical News*, July, 1876, his opinion that *quinine*, given as it is given for intermittent fever, is infallible in eradicating the malady, and its influence is visible within twenty-four hours. He prescribes:

182. ℞. Quiniæ sulphatis, ℥j.
To be divided into twelve pills. Two to four pills daily until the disease fades.

When the leaves of the rhus have been eaten by mistake, a strong infusion of the bark of the root of *sassafras* has relieved; and the *oil of sassafras* may be applied locally. (*Druggists' Circular*, Aug., 1879.)

Local applications he does not deem essential to the treatment. The best he considers to be corrosive sublimate in two or four-grain solutions.

In Louisiana, according to Dr. W. W. Dunn, (*Medical and Surgi-*

cal Reporter, March, 1871,) a decoction of the leaves of the cotton-wood, *Populus Angulata*, is esteemed to be a specific in rhus poisoning. It may be taken internally *ad libitum*.

SNAKE BITES.

The immediate treatment of the bites of venomous serpents and other dangerous poisoned bites, embraces the following steps, to be attended to in the order given:

1. *Ligation* of the part or limb as tightly as possible, a short distance above the wound. Drs. BRUNTON and FAYRER recommend that the bandage, after the wound is dressed, should be loosened only an instant or two at a time, so that the poison thus absorbed into the general circulation may be excreted by the kidneys before another quantity enters the blood.

2. *Washing* the part thoroughly with water, or soap and water.

3. *Excision* of the tissues in the immediate vicinity of the bite; or, if this is not practicable, enlargement of the wound and scarification.

4. *Suction*, either by the mouth or a cupping-glass. This should be continued as long as any blood can be obtained, say twenty minutes to half an hour.

5. *Cauterization* with nitrate of silver, chloride of zinc, carbolic acid, the mineral acids or the actual cautery, the most convenient form of which is often a live coal or the incandescent end of a dry stick.

The subsequent dressing may be of warm water, medicated with laudanum and acetate of lead; cloths dipped in olive oil; a light cataplasm medicated with ammonia; cold compresses or ice.

The general constitutional treatment should pursue the following course:

1. *Stimulation* must be resorted to early and freely. In rattlesnake bites, for example, two ounces of whisky should be given every ten minutes until signs of inebriation appear. A powerful diffusible stimulant is the spiritus ammoniæ aromaticus; it may advantageously be combined with the alcohol, the amount given being a full dose, f. ℥j, every twenty minutes. Anodynes may be added, or given by the rectum, to allay pain and fear.

2. *Antidotes* are called for, when any such are known. The

formulæ of a number of compounds alleged to be of this character will be given below.

3. *Enforced Exercise* is of the utmost importance when there is threatening stupor and numbness. It should be violent and prolonged, as running, vigorous rowing, etc.

4. *Artificial Respiration*, by any of the approved mechanical methods, or by employing galvanism or electricity, should be resorted to when the lethargic action of the poison threatens the respiratory movements. The patient may thus be kept alive until stimulants and antidotes overcome the venom. Sinapisms to the epigastrium, and the cold douche, poured from a height of six or eight feet upon the head, are also efficient means to this end. Dr. FAYRER recommends artificial respiration to be kept up for hours, and even days, believing that if this is done the system may combat and throw off the poison by excretion.

PROF. HALFORD, M. D., OF AUSTRALIA.

The treatment recommended by this surgeon in poisonous bites from venomous serpents, spiders, etc., is the injection of the liquor ammoniæ fortior, diluted with two or three times its bulk of water. Of this mixture, 20 to 30 drops are to be injected into one of the large veins, as near to the bite as possible. If the symptoms are relieved, but the patient seems still in danger, the injection may be repeated as soon as the operator deems it prudent.

Although this method of treatment seemed to fail in Professor FAYRER'S hands, in India, there can be no doubt it has repeatedly succeeded in Australia and America. Mr. T. HOLMES says on this subject: "I must say that to my mind it is quite clear that Professor HALFORD'S treatment, whether sufficiently energetic or not to combat the virus of the most deadly serpents, has acted beneficially and has saved life in many of the bites of Australian serpents, and deserves to be fully tested in those of other countries." (*System of Surgery*, 1876.) The more recent reports from Australia do not fully bear out those previously sent, but there is no reasonable doubt that ammonia in this form would act as a powerful revulsive, and no hesitation should be had in resorting to this measure when called for.

As used by Dr. A. S. TODD, of Virginia, (*Trans. Va. State Med. Soc.*, 1872,) the liquor ammoniæ is mixed with flaxseed meal or slippery elm bark, to make a cataplasm, and applied to the part;

while internally the patient was given liquor ammoniæ aromaticus f. 3 j, in a wineglass of water, every three hours.

Professor BRAINARD, of Chicago, made a series of experiments with the following:

183. ℞. Iodinii, gr. v.
Potassii iodidi, gr. xv.
Aquæ destillatæ, f. ℥ j. M.
Use as hypodermic injection.

His directions are to place a cupping-class over the wound, and pass the nozzle of the syringe beneath the skin under the edges of the cup, throwing in sufficient of the above to "infiltrate the tissues."

BIBRON'S ANTIDOTE.

184. ℞. Brominii, f. ℥ ijss.
Potassii iodidi, gr. ij.
Hydrargyri chloridi corrosivi, gr. j.
Alcoholis diluti, f. ℥ xxx. M.

A teaspoonful in wine or brandy, repeated p. r. n. after the bite of a rattlesnake. This had at one time considerable fame, but has of late years fallen out of confidence. Various observers on the western plains have testified to its value.

RÉSUMÉ OF REMEDIES.

Alcohol in some form ranks among the most important antidotes in the bites of venomous serpents. (P. 177.) It should be given freely until the patient shows decided symptoms of intoxication. Distilled spirits, whisky, gin or brandy is the best form.

Ammonia. Both as a local and internal remedy, the spirits of ammonia are constantly used in poisonous bites and stings. (See above, p. 178.) The celebrated *Eau de Luce*, named from the island Santa Lucia, is the *spiritus ammoniæ succinatus*.

185. ℞. Mastich, f. ℥ iij.
Alcoholis, f. ℥ j.
Ol. lavand., gtt. xiv.
Ol. succin., gtt. iv.
Spiritûs ammoniæ, f. ℥ xx. M.

Macerate the mastich in the alcohol, pour off the clear tincture and add the rest. The dose is from gtt. x to f. ℥ j.

The *Spiritus Ammoniæ Aromaticus* should be given in f. ℥ j doses frequently repeated; or the *Liquor Ammoniæ* in ℥ ss, well diluted, every ten or fifteen minutes.

Antimonii et Potassii Tartras. The cobra bite has been successfully treated in India by ligation and scarification, followed by:

186. ℞. Antimonii et potassii tartratis, gr. ij.
Aquæ, f.℥viij. M.
A wineglassful every fifteen minutes till free vomiting is induced.

The convalescence is aided by quinine.

Arsenicum. In various forms, arsenic has enjoyed a high repute in serpent bites in India. It is given as Fowler's solution, or as the *Tanjore pill:*

187. ℞. Acidi arseniosi, gr. iv.
Piperis nigri, ʒij.
Acaciæ, q. s. M.
Make sixty pills.

These are given up to the limit of tolerance.

Baptisia Tinctoria. The wild indigo plant is a popular remedy for rattlesnake bite among the mountains of the Middle Atlantic States. The leaves are applied as a poultice to the part.

Ipecacuanha. The following is a favorite treatment for rattlesnake bite in Guiana:

188. ℞. Pulveris ipecac., gr. xx–xxx.
Pulveris capsici, gr. v. M.
Make one dose.

Aid the vomiting and diaphoresis by abundance of warm water. After the emesis ceases, alcohol should be given to the extent of slight inebriation. Local means are not employed.

Pareira. In Brazil, the root of *Pareira brava* is used in the bites of poisonous serpents. A vinous infusion is taken internally, while the bruised leaves of the plant are applied to the wound.

Simaba Cedron. This plant, indigenous to Central America, has a considerable reputation as a specific antidote for venomous bites. The fruit, a sort of bean, is the part used. Sufficient has been said of it to justify further and more ample trials than have yet been made of its merits.

Tabacum is an antidote to many poisonous bites, and is popularly used in the South and West for this purpose. A poultice of tobacco is applied to the bitten part, and sufficient is swallowed to nauseate the patient. It is considered that the sufferer is safe, so long as he can be kept nauseated.

VI. LESIONS FROM HEAT AND COLD.

Burns and Scalds (Scalds of the Glottis and Larynx)—Lightning Stroke—Sun Stroke—Frost Bite and Frozen Limbs.

BURNS AND SCALDS.

MR. T. HOLMES, ENGLAND.

The treatment of burns and scalds is directed, first, to the immediate lesion; and, second, to its after consequences. At the time of the accidents, the main indications are: 1. To exclude the air from the burn and surface by some local application. 2. To allay pain. 3. To bring about reaction by the judicious use of stimulants.

The exclusion of air can be accomplished in a variety of ways. Common flour dredged on the part is a very good and handy application in superficial scorches. Carron oil and oil of turpentine are valuable when the surface of the skin is quite destroyed. Probably nothing is better than swathing the part in thick layers of cotton-wool, which is prevented from sticking to the burnt surface by covering this with folds of soft linen, anointed with ceratum calaminæ or other simple ointment. After a few days, when the discharge becomes foul, this should be renewed and the wound dressed with carbolized oil, beginning with a weak solution, as:

189. ℞. Acid. carbolic., ℥j.
Olei olivæ, f.℥iij. M.

This may be increased in strength as required. As the sloughs separate, they should be removed at once, so that the fetor be diminished.

At the time of the accident, opium should be liberally given, and brandy to the extent of bringing about a gradual reaction. Diarrhœa must be checked by opiates, and vomiting by creosote and prussic acid. Burns ought not to be dressed frequently; at the same time, the surgeon must guard against fetor and the accumulation of pus.

DR. JOHN MORRIS, OF BALTIMORE.

Various judicious suggestions are given by this writer in reference

to the immediate treatment of burns. (*The Sanitarian*, December, 1874.)

The first step is to remove the clothing carefully by cutting it from the body, and then to wrap the patient in hot blankets or large masses of cotton. To allay the pain, chloroform or ether should be administered to partial or complete unconsciousness, and opium given in full doses.

The dressing should be applied while the patient is under the influence of the anæsthetic. Dr. MORRIS condemns carron oil as useless. In bad scalds of children, he places the patient in a bed of loose *bran*, so that the child is entirely covered with it. This has the advantage of not requiring change each day; as the moist particles fall off, they can be replaced with fresh bran without disturbing the patient. He severely condemns frequent changes of dressings. As a local anæsthetic and deodorant, he has found the following to give relief to the patient:

190. ℞. Liquor. sodæ chlorinatæ, f.℥j.
Morphiæ sulphatis, gr. iij.
Aquæ, Oj. M.
Apply locally on soft rags.

Or the following:

191. ℞. Acidi carbolici, f.℥j–iv.
Morphiæ sulphatis, gr. ij.
Olei olivæ, f.℥vj. M.
Apply locally.

After the free application of one of these, the parts may be wrapped in cotton batting. For superficial burns, simple cold or warm-water dressing is often enough.

For the treatment of the shock, alcoholic drinks are not advisable. The best stimulant that can possibly be given is strong, hot coffee, to which a little brandy may be added if manifestly needed.

Labarraque's solution has also been highly extolled by Prof. L. A. DUGAS, M. D., of Georgia. He states that it possesses the rare virtues in such cases of immediately arresting all pain, and also of preventing suppuration when the whole thickness of the skin has not been destroyed. From half an ounce to one ounce, to a quart of water, will be usually of the proper strength, and the affected surface should be covered with old linen, which is to be kept wet with it, and not to be removed for 24 to 48 hours, according to circumstances, as it is im-

portant to avoid tearing away the cuticle. In cold weather, and when the burn involves a large surface, so as to render wet applications objectionable, he is in the habit of mixing the chloride with linseed oil, in the proportion of ½ oz. or 1 oz. to 8 oz. of oil, and using this in lieu of the aqueous mixture above described. As a guide in regulating the strength of either of these prescriptions, it is sufficient to say that whenever the application gives pain instead of relief, it is too strong, and should therefore be weakened.

PROFESSOR THEODOR BILLROTH.

The treatment of burns of the first and second degree looks more toward alleviating the pain than to any more particular end.

If there are any vesicles, it is not advisable to remove the loosened epidermis, but to open the vesicle by a couple of needle punctures, and carefully press out the serum to remove the tense feeling. Numerous remedies are used whose only effect is to cover perfectly the inflamed skin. Mashed potatoes, starch and collodion are popular. The two former are soothing and agreeable, but Dr. BILLROTH has not been satisfied with collodion, as it cracks readily, and the skin in the cracks becomes sore and sensitive.

When all three degrees of burns are combined, Professor B. particularly recommends the nitrate of silver treatment.

192. ℞. Argenti nitratis, gr. x.
Aquæ, f. ℥j. M.

This to be painted over the burnt part, and compresses wet with it to be constantly applied.

At first the pain from this cauterization of the parts, denuded of epidermis, is occasionally very great; but a thin, blackish-brown crust soon forms, and the pain then ceases entirely. The treatment should be continued until the eschar is completely detached.

The healing of the wound is often very slow, requiring months. Of the remedies for promoting cicatrization, Dr. BILLROTH especially recommends the compression of the wound by strips of adhesive plaster.

In the treatment of *cicatricial contractions*, resulting from these burns, compression of the cicatricial bands by adhesive plaster is one of the most important remedies, and it should always be tried persistently before resorting to excision of the cicatrix or to plastic operations.

Where the burn is of the greater part of the body, our whole attention must at first be devoted to the general condition of the patient.

and we must try to prevent collapse by the use of stimulants, such as wine, hot drinks, hot baths, ether, ammonia, etc. Professor HEBRA praises the treatment of such extensive burns by the continued warm bath, which, under proper circumstances, may be kept up for weeks.

DR. E. R. SQUIBB, OF BROOKLYN, N. Y.

This practitioner (*Druggists' Circular*, August, 1868,) believes that for burns of the second degree the best application is:

193. ℞. Creosoti, ℥ ss.
Aquæ, ℧ j. M.

When the cuticle is not broken, he uses it of double this strength. Rags or cotton should be saturated with it, and fixed on the parts, taking care to keep them constantly moist.

DR. J. F. KENNEDY, OF IOWA.

194. ℞. Pulv. aluminis, ℥ j.
Olei olivæ, ƒ ℥ ij.
Adipis, ℥ iv.
For an ointment.

Having first painted the parts with a mixture of equal parts of olive oil and white of eggs, thoroughly beaten together, Dr. K. applies the above ointment on soft cloths. The relief experienced he describes as immediate and almost magical. (*Medical and Surgical Reporter*, June, 1870.)

PROF. S. D. GROSS.

The favorite application of this surgeon is *white lead paint*:

195. ℞. Plumbi carbonatis, ℥ ij.
Olei lini, q. s.
To make a fluid of the consistency of thick cream.

This remedy is more particularly applicable to the milder forms of these injuries. If vesicles exist, they must be evacuated with a fine needle, and the surface thoroughly dried, or the paint will not adhere. The paint should be applied freely with a soft brush, and the dressing completed by covering the painted surface with a layer of carded cotton or old muslin, supported by a moderately firm roller. There is no danger from lead-poisoning in using this application, no matter how extensively it is applied.

DR. JOHN H. BRINTON, OF PHILADELPHIA.

196. ℞. Aquæ calcis, f.℥ viij.
Olei amygdal. amar., gtt. ij–iij.

Beat up f. ℥ ij of this with ℥ iv of well-washed lard, and apply freely over the burned surface, on soft cotton cloth, changing twice a day.

DR. I. H. POOLEY, ENGLAND.

197. ℞. Ferri sulphatis, ℥j.
Aquæ, Oj. M.

Apply about three days after the burn or scald has taken place, when the suppurating stage has commenced.

DR. MADISON MARSH, LOUISIANA.

198. ℞. Aluminis, ℥j.
Aquæ, f.℥ viij. M.

This is a saturated solution of alum. It is an excellent application to fresh burns and scalds. Cloths should be soaked in it and applied to the wound.

PROF. GORDON BUCK, M. D., OF NEW YORK.

199. ℞. Acaciæ pulveris, ℥ iv.
Tragacanthæ pulveris, ℥ ij.
Syrupi fusci, Oj.
Aquæ bullientis, q. s. M.

To make a mixture of the consistency of honey.

The mixture was long popular in some of the New York hospitals, as a local application in burns.

MR. CHARLES RICE, OF PHILADELLHIA.

200. ℞. Best white glue, ℥ xv.
Cold water, O ij.
Soften, melt, and add—
Glycerine, ℥ ij.
Carbolic acid, ℥ ij.

Heat in a water-bath.

This can be applied with a broad brush. It hardens in about two minutes, leaving a smooth, flexible, transparent skin.

DR. A. D. BINKERD, OF PENNSYLVANIA.

201. ℞. Ceræ flavæ, ℥j.
Olei lini, f.℥ iij.
Acidi tannici, ℥j.
Bismuthi subnitratis, ℈j.

Heat the wax, add the oil and stir; when cold, add the acid, and last the bismuth. Apply on lint or rags.

202. ℞. Pulveris iodoformi, ℈ ij–iv.
Cerati, ℥ j. M.

A soothing anæsthetic ointment, in burns and scalds. Five or six drops of carbolic acid may be added.

203. ℞. Chlorali hydrati, ʒ j–iss.
Glycerinæ, f. ʒ ss.
Aquæ destillatæ, f. ʒ vj. M.

A soothing application to burns, etc., when there is a fetid discharge. It smarts at first, but soon produces local anæsthesia and diminution of fetor.

MR. EDWARD KENTISH, LONDON.

The plan of treatment in severe burns recommended early in this century by this surgeon has lately been revived with much success. The injured surface is first washed with *oil of turpentine*, and then an ointment is made by thinning basilicon ointment with turpentine, which is applied to the burned surface on soft rags.

W. R. E. SMITH, M. D., INSPECTOR-GENERAL, BRITISH ARMY.

When suppuration has commenced, the parts should be cleansed, washed with carbolated oil, and then dusted from a flour dredger with the following:

204. ℞. Zinci oxidi,
Magnesiæ carbonatis, āā ℥ j.
Pulveris amyli, ʒ ij. M.

This forms a firm incrustation, like a scab, under the protection of which the parts heal rapidly. It should be applied whenever the moisture appears.

SCALDS OF THE GLOTTIS AND LARYNX.

This accident is not infrequent, especially in children, from the swallowing of scalding fluids, or in adults from breathing flame in conflagrations or swallowing corrosive fluids. It is dangerous, and requires the utmost attention. The peril arises from the subsequent œdema and spasm of the glottis.

Leeches should be applied frequently to the external surface of the throat, followed by large poultices. Remedies to prevent the inflammation must be energetically exhibited.

205. ℞. Vini antimonii, gtt. xxiv–xlviij.
Tincturæ aconit., gtt. xij–xxiv.
Aquæ, f. ℥ iij. M.

A teaspoonful at first every quarter of an hour, then every half hour, and afterwards a longer intervals.

If spasm supervenes, the patient should be cautiously etherized, the mouth fully opened, and the œdematous parts around the fauces freely scarified. (Mr. T. HOLMES.)

The mode of treatment in these cases advocated by Dr. BEVAN, of Dublin, is to give the patient at once small quantities of olive oil to drink, or to place in the mouth morsels of fresh, unsalted butter. The air breathed should be heavily charged with moist, warm vapor by covering the head with a canopy, under which a steam jet should be conducted. Leeches should be applied to the sternal notch, and the following powder laid on the tongue every two hours:

206. ℞. Hydrarg. chlor. mitis, gr. j.
Antim. et potas. tart., gr. ½.
For a child.

The upper portion of the sternum should be covered with a blister if there arise signs of broncho-pneumonia.

RÉSUMÉ OF REMEDIES.

Alumen, in strong solution or ointment, is an excellent application. (F. 198.)

Acacia. Apply a thick coating of gum arabic mucilage, and then dust well with the dry powder. This is a favorite treatment in the Boston hospitals.

Argenti Nitras. This has been lauded by many as the best of all substances in burns. The eminent surgeon, Mr. SKEY, recommends in all recent burns painting the part with:

207. ℞. Argenti nitratis, gr. xx.
Aquæ, f. ℥j. M.

This alleviates the pain and diminishes the subsequent ulceration. In the sores which follow burns, the local use of the silver nitrate is often called for to hasten the healing process.

Bismuthi Subnitras. Dr. T. G. RICHARDSON, of Louisiana, recommends subnitrate of bismuth, mixed with glycerine to the thickness of paint, and brushed freely upon the part.

Boracicum Acidum. This is used as follows:

208. ℞. Boracic acid in fine powder, 1 part.
White wax, 1 part.
Paraffin, 2 parts.
Almond oil, 2 parts.

Melt the wax, paraffine and oil with a gentle heat; then add the acid, and continue stirring until it remains of uniform consistence. Before using, it should be reduced to a soft mass by rubbing it in a cold mortar.

Calcis Aqua, with olive or linseed oil, is a standard remedy.

Calcis Glyceritum. The following glycerite of lime has been found valuable:

209. ℞. Calcis, ℥j.
Glycerinæ, f.℥vj.
Chloroformi, ℥j–ij. M.
For local application.

Carbolicum Acidum, in dilute solution or ointment, is a popular and valuable application.

Carbo Ligni. Powdered charcoal dusted on the burned surface is said to be an extremely soothing, disinfectant and healing application.

Collodion, painted over light burns subdues inflammation.

Creosotum, as a solution, is preferred by Dr. SQUIBB. (F. 193.)

Creta. At St. Thomas' Hospital, London, the favorite preparation for children is:

210. ℞. Acidi acetici, 1 part.
Aquæ, 12 parts.
Cretæ (whiting) q. s. M.
Make a thick cream and apply lightly with a brush.

Ferri Sulphatis. Added in small quantities to water dressings, or to warm baths for the burnt parts, this has been found an excellent application. For a lotion, ℥j to aquæ Oj.

Fuligo Ligni. Dr. JOSEPH A. KYLE, of Ohio, writes that after on experience of thirty years, he can confidently recommend a preparation consisting of three parts of lard and two parts of soot, or equal parts, in the treatment of all scalds and burns. Pain is allayed, and the skin, after healing, remains smooth.

Iodoform is a soothing adjunct. (F. 202.)

Oakum. Picked oakum is an excellent dressing for the suppurating sores resulting from burns. Not only does it prevent the offensive smell and hasten the healing process, but, according to Mr. ROBERT L. SNOW, of London, the resulting cicatrices *do not contract*. The oakum must be wetted with cold water several times a day, and need not be changed more than once in three or four days.

Oleum Menthæ, applied by pencil or cloth to the wound, gives prompt ease from pain. It may be diluted with glycerine.

Plumbi Acetas. Solutions of acetate and subacetate of lead are valuable for their cooling and sedative properties.

Plumbi Carbonas is recommended beyond other things by Professor GROSS. (F. 195.)

Sodii Bicarbonas. There is hardly any better remedy for recent scalds and burns of the first and second degree than to dust the part thoroughly with finely-powdered bicarbonate of soda. The pain is promply allayed and healing greatly hastened. Other neutral alkalies might answer as well.

Sodæ Chlorinatæ Liquor is highly praised by Drs. MORRIS and DUGAS. (F. 190.)

Terebinthinæ Oleum. Kentish ointment, *linimentum terebinthinæ*, U. S. Ph., enjoys a just reputation in the treatment of burns.

Unguentum Petrolei is a soothing application.

Zinci Oxidum, in ointment, especially with carbolic acid added in small quantity, is a soothing and healing application.

LIGHTNING STROKE.

A stroke of lightning usually produces the effect of a shock and a burn. The indications for the treatment of the first of these are thus laid down by Sir BENJAMIN BRODIE: "Expose the body to a moderate warmth, so as to prevent the loss of animal heat, to which it is always liable when the functions of the brain are suspended or impaired; and inflate the lungs, so as to imitate the natural respiration as nearly as possible."

If, after recovery from the immediate effects, there remains a partial loss of cerebral power, Mr. T. HOLMES recommends galvanism in a mild form, continued for a very long time, combined with small doses of strychnia and other tonics.

The burns should be treated in the same manner as those from any other cause.

B. W. RICHARDSON, M. D., LONDON.

In severe cases of lightning stroke, Dr. RICHARDSON urgently advocates immediate bleeding from the arm. He writes as follows. (*Medical Times and Gazette*, Aug., 1874:)

"Our forefathers were satisfied as to the good effects of blood-letting in cases of lightning-shock. Dr. MACAULAY, an able naval surgeon of last-century education, has left on record the history of a man who, struck down on deck by lightning, and being entirely insensible, was brought to consciousness and recovery by the rapid extraction of over forty ounces of blood. I have not myself had the opportunity of treating a case of lightning-shock in the human subject, but an experience of another kind bears directly upon the value of the remedy in such cases. In experimenting with the great induction coil at the Polytechnic College, I tried to kill large animals—sheep—painlessly, by an electrical discharge derived from a Leyden battery set 'in cascade,' and presenting ninety-six feet of surface. The shock is identical with the fatal, intense shock of lightning, and by passing it once through the body of a sheep, it rendered the animal instantaneously unconscious—to all appearance dead, and, as I found by one line of experiment, actually dead, if nothing were done to the animal. But in another line of experiment, the animals, so soon as they were stricken, were removed by the butcher, and were subjected to division

of the vessels of the neck in the usual manner of killing in the slaughter-house. At first blood flowed very slowly from the operation, but in a short time the current became freer; and as it became free, the phenomena of active life, previously suspended in the animals, returned. There was return of consciousness, of motion, of struggle for liberty, and all those proofs of life that an animal passes through, previous to convulsion, when it is submitted to slaughter without shock.

"If we connect the experience of those of our predecessors who have successfully employed blood-letting for the cure of lightning stroke with the experimental facts I have here adduced, the inference is, I think, as fair as inference can be, that blood-letting is *the remedy* for the effects of the shock of lightning."

SUNSTROKE.

DR. WALLER, INDIA.

Undoubtedly the most important remedial measure in sunstroke is that first suggested, we believe, by the above-named surgeon, to wit, the *hypodermic injection of quinine.* His formula is the following:

211. ℞. Quiniæ sulphatis, gr. x.
Acid. sulph. dilut., ♏ x.
Aquæ, ad ♏ c. M.

To be used in three injections, at short intervals, until reaction supervenes.

The value of this application is fully borne out by the testimony of many British surgeons in India, besides the authority of Dr. WALLER, (*India Medical Gazette*, July, 1869,) who has had a large experience in India, as a specific in this affection, whether the skin is hot and dry or cool and moist, and whether or not muscular spasm be present. It rapidly diminishes the stupor and spasm, restores consciousness, and cures the attack. He gives quinine at every stage of the attack, either by the mouth (gr. xx at first, and gr. x every successive hour,) or, if the patient be unable to swallow, hypodermically, (gr. iss injected in each arm.)

For the intense and persistent headaches which follow sunstrokes, *blistering* to the nape of the neck and full doses of *bromide of potassium*

have proved most useful. Where the symptoms point to slow inflammatory action at the roots of the pneumogastric, a gentle course of *mercury* is indicated. The confusion, dullness of mind, loss of memory and extreme nervousness, which are some of the distressing sequelæ of sunstroke, are, according to Dr. J. C. PETERS, most successfully combated by the free use of *dilute phosphoric acid.*

DR. THOMAS G. HERRON, OF CINCINNATI.

The treatment pursued by this physician is by *hot water.* (*Medical and Surgical Reporter*, October, 1868.) He applies very warm water to the head, by large wet towels, frequently changed, and pours the water, hot as the hand can bear it, freely over the head and neck. The feet should also be placed in hot salt water, and moderate stimulation be practiced as soon as the patient can swallow.

Dr. HERRON claims that one noticeable feature attends these cases, to wit, that with returning strength the vigor and activity of the mind and memory are preserved, and those mental impairments, which so frequently attend recovery under the cold-water treatment, are not noticed.

A writer in the *Canada Lancet*, August, 1878, says: "As the three most urgent wants in sunstroke are the cooling of the body, increase of perspiration, and removal of listlessness and oppression, it will at once be evident that upon no hypothesis are alcoholic stimulants admissible, but hot applications to the head, hydrobromic acid, bromide of ammonia and copious draughts of hot infusion of tea."

DR. HENRY HARTSHORNE, OF PHILADELPHIA.

This writer considers it important to distinguish between *heat apoplexy* and *heat exhaustion.* For the former, cupping or leeching the back of the neck or behind the ears should generally be the first remedy, after the application of ice or iced water freely to the head. The head and shoulders should be kept raised. A purgative enema should be administered, and sinapisms applied to the lower limbs.

Heat exhaustion requires different treatment. Local depletion should be avoided. Cold to the head and body should be alternated with revulsives (as sinapisms) to the epigastrium, spine and limbs. Syncope must be combated with ammonia. Where restlessness is a prominent symptom, the hypodermic use of morphia is called for.

SIR JOSEPH FAYRER, K. C. S. I.

The rules laid down by Sir JOSEPH FAYRER, K. C. S. I., and quoted in the *British Medical Journal*, August, 1876, may be briefly summarized thus: First, removal to cooler locality, the cold douche, (but not too much prolonged), or the administration of stimulants, and in general, as for syncope from other sources. Second, where the person is struck down suddenly by a hot sun, the patient should be removed into the shade, and a cold douche of water allowed to fall in a stream on the head or body, for the object of reducing the temperature of the overheated centres, and to rouse them into action. Third, mustard plasters and purgative enemata may be useful. Fourth, should the recovery be imperfect, other treatment may be necessary, according to indications. In cases of thermic fever, bleeding should be avoided, good results being produced by the hypodermic injection of morphia and of quinine, by their influence on the vaso-motor nerves, and their power in retarding tissue change. The most severe symptoms having subsided, the febrile condition that follows should be treated by salines and aperients, with mild diet. If meningitis set in, iodide of potassium and counter-irritants may be used to advantage. In every case removal to a cooler climate is essential, and the sufferer should not, for a long period at least, return to a hot or tropical climate. Undue exposure to heat, work, mental anxiety or stimulants should be carefully guarded against.

The treatment recommended by Dr. C. BLISS (*Medical Record*, N. Y.,) is similar in most respects, but there are one or two points worthy of note—for instance, that a condition necessary to the success of any plan or treatment is that it must be applied before the patient's temperature has reached 108° or 109° F. The doctor advocates the free use of water at its ordinary temperature in preference to ice, and when consciousness is restored, the patient should be dried with gentle friction, placed in bed, and covered with a light blanket; light liquid diets and saline aperients, if required.

PROF. WILLIAM AITKIN, M. D., EDINBURGH.

This writer recommends the following line of treatment of Dr. BARCLAY:

In the class of cases in which death tends to occur suddenly, from *syncope*, there is little opportunity afforded for relief; but the measures

indicated are: the *cold douche;* keeping the surface wet and exposed to a current of air, or assiduously fanned; exclusion of light, as far as possible; the immediate employment of stimulants, external and internal, by the rectum as well as by the mouth. *Depletory measures of any kind are not to be thought of.*

In the less-rapidly decisive cases, prompt treatment is of the greatest use, while delay is fraught with the greatest danger. The patient must be immediately stripped of his outer clothing, placed in a semi-recumbent position, and the cold douche applied, from a height of three or four feet, over his head and along his spine and chest, while his extremities are sponged with cold water. Relaxation of the pupil is the first favorable symptom under this treatment, which may require to be repeated several times, on account of returning insensibility. If there is any evidence of failure of the pulse, this treatment must be discontinued, for application of cold to the head is then all that can be borne. The hair is to be cut short as soon as possible, and a blister applied to the nape of the neck. When the first violence of the attack is subdued, increasing confidence in the ultimate result may be indulged in so soon as vesication takes place; and in cases where insensibility recurs after an interval of ten or twelve hours, it may be removed by the application of a second blister to the vertex. A blister may also be applied along the spine in the worst cases. Stimulation by the *electro-galvanic current*, with the moist sponges applied along the sides of the neck, chest and epigastrium, ought also to be employed. *Sinapisms* ought generally to be applied to the extremities, and to the chest or sides.

In cases where the breathing is much oppressed, and the bronchial tubes loaded with mucus, the patient should be turned occasionally over on his face and side.

In the convulsive form of the disease, where the greatest irritability of the nervous system prevails, the douche is found to be inadmissible, from the agony which it occasions. In such cases, Dr. BARCLAY has found great benefit from the inhalation of *chloroform*. Great care is necessary in its employment, and the cases in which it is indicated are rare.

Dr. A. P. MERRILL, of New York, and others, have recommended the use of *chloroform* internally.

DR. WHITEHILL, OF ST. LOUIS.

This surgeon has had a large experience with sunstroke, having

seen as many as fifty cases in a single day during a forced military march in 1863. (*St. Louis Medical Archives*, Sept., 1868.)

The treatment found most successful was *cold* to the head and chest, friction of the extremities and the internal administration of stimulants, such as brandy and ammonia. In his own case, the nausea and vomiting were relieved by full draughts of strong green tea and Rhenish wine. In all cases, a most important part of the treatment was to place the patient in the recumbent position in the shade, where there was a free circulation of air, and at the same time disencumber him of everything that could in any wise interfere with either circulation or respiration. Under this treatment every case had recovered.

C. G. HILL, M. D., MARYLAND.

Our author recommends (*Virginia Medical Monthly*, November, 1874,) *oxygen inhalations* in heat-stroke. The oxygen should be applied loosely to the nostrils, so as to allow a free admixture of atmospheric air.

W. C. MACLEAN, M. D., LONDON.

When blood-letting was the rule for sunstroke, recovery was the rare exception. There is now great unanimity of opinion on the treatment, and the lancet has no place in it. At the earliest possible moment, let the sufferer be carried to the nearest shade, stripped, and *assiduously dashed with cold water over the head, neck and chest.* If this be effectually and quickly done, the powerful impression on the cutaneous nerves will soon re-establish respiration, at first by gasps and catches, soon in a more regular and tranquil manner. It will also reduce the heat of skin. It may be required to be done again and again; in hospital it may be necessary to envelop the patient in a *wet sheet*, and to ply the fan or punkah over him vigorously, until the skin is reduced to a more natural temperature. The patient should be encouraged to *drink* freely; if vomiting follows, it will often aid in relieving the congestion of the lungs. The douche, used as above described, is a powerful remedy, and, as Dr. ABERCROMBIE long since pointed out, it may be abused, particularly if it is applied too long to the shaven scalp. MOREHEAD also cautions us against its prolonged use in a routine way when the skin is cold and clammy and the respiration sighing; under such circumstances we must restrict ourselves to dashing water over the face and chest. When the heat of the skin is

excessive, we may avail ourselves, if ice be at hand, of Dr. PARKES' suggestion, and give an *enema of ice-cold water*. We should apply *ammonia*, with the usual caution, now and then, to the nostrils; the bowels being always constipated, the sooner they are relieved the better, by the use of purgatives and enemata. The occurrence of moderate diarrhœa seems to favor recovery. Support and a judicious use of stimulants must not be neglected. If sensibility be not restored and maintained by the douche, a *blister* should be applied at once to the nape, and, if needs be, to the shaven head. There is much unanimity as to the good effects of this measure. Dr. BARCLAY has found chloroform inhalation useful in a convulsive form of the disease, attended with extreme nervous irritability, a class of cases in which the douche is inadmissible from the agony it occasions. In some cases life was saved by this remedy; in all it was prolonged.

Treatment of the Sequelæ.—Great attention to the function of the skin forms an essential part of the treatment of all the varieties of sequelæ of sunstroke, for it is impaired in all. Frictions, bathing, exercise in the open air, are beneficial. When the headache is not fixed, but shifting, it will often be found to depend on a weak condition of the digestive organs, and careful treatment, suited to the particular features of each individual case, is required.

EDWARD JOHN WARING, M. D., LONDON.

Blood-letting was formerly much employed; but from the mortality which attended this treatment, in the hands of Dr. RUSSELL and others, it has fallen into comparative disuse. Dr. MOREHEAD, indeed, goes so far as to say that he "should have no hesitation in altogether interdicting this proceeding in the treatment of sunstroke." This is, perhaps, rather too sweeping a direction; but it is certain that, except in young, plethoric constitutions, and where vascular action runs high, by far the most successful treatment consists in cold affusion to the head, throat, chest, spine and epigastrium, the application of ice to the spine, stimulants internally (ammonia, ether, weak brandy and water), and frictions to the surface. In the stage of reaction, leeches to the temples, or cupping at the nape of the neck, may be required.

RÉSUMÉ OF REMEDIES.

Apomorphia. Drs. TOMLINSON and MURPHY (*Indian Med. Gazette* November, 1879,) call attention to the value of hydrochlorate of apomorphia in the treatment of cases of sunstroke. In three very severe cases the drug was administered

as soon as possible after the admission of the patient to the hospital, $\frac{1}{12}$ gr. being sufficient to produce the desired emesis in two of the cases, and all three recovered rapidly.

Chloroformum, internally and by inhalation, has been recommended. (See page 193.)

Morphia, hypodermically, in the dose of gr. $\frac{1}{4}$, has been given with success by Dr. JAMES H. HUTCHINSON, in cases marked by nervous symptoms, such as convulsions, jactitation, delirium and general excitement.

Oxygen by inhalation has been recommended in heat-stroke. (See page 194.)

Quiniæ Sulphas is regarded by the British surgeons in India as the most efficient of all remedies in sunstroke. (See above, page 190.)

* *Water*, freely drank, cold, is beneficial, as well as its use by free affusion.

Stimulants are useful by the rectum and mouth.

Blood-letting is rarely indicated, and often very dangerous.

EXTERNAL REMEDIES.

Cantharis. A blister to the nape, or to the shaven head, produces excellent results if insensibility continue.

Enemeta of ice-cold water have been advised.

Frigus. The application of cold to the general surface of the body, by stripping the patient and steadily rubbing the entire skin with large pieces of ice, keeping at the same time pieces in each axilla, is a method of treatment employed at the Pennsylvania Hospital with success. (*Pennsylvania Hospital Reports*, 1858, p. 380.) Iced wine and water are given internally. Dashing cold water over the head, neck and chest is excellent practice.

FROST-BITE AND FROZEN LIMBS.

The successful treatment of these effects of cold demands the utmost judgment and skill on the part of the surgeon. It is sharply divided into: first, the immediate treatment; and, second, the treatment of the reaction.

A person frozen or frost-bitten should be placed in a *cold* room, and the part immersed in ice-cold water, or gently and carefully rubbed with snow or pieces of ice. The skin should on no account be chafed or broken by these frictions. The great point is to restore the circulation *gradually*, and from half an hour to four hours must be expended in doing this, according to the severity of the effects of the exposure.

No matter how carefully it is done, there is apt, in severe cases, to remain a capillary stasis, manifested by a bluish color of the surface,

This should be met by *vertical suspension of the limb*, and gentle friction from the extremities toward the heart, so as to diminish the venous stagnation.

After reaction has commenced, the treatment consists in endeavoring to prevent the inflammation from running to such an extent as to induce sloughing of the structure. The necessity no longer exists for keeping the patient in a cool room. The part should be placed in an easy and elevated position, lightly covered, and slightly-stimulating lotions applied. If local reaction threatens to be severe, painting the part with the compound *tincture of iodine* has been found most serviceable. If vesicles appear, they should be opened by small punctures, and lint applied, spread with a mixture of equal parts of lime-water and cod-liver oil, which has the effect of relieving the burning and smarting sensation, probably by protecting the ulcerated surface from the action of the atmosphere.

Should the part lose its sensibility, become colder, assume a purplish, mottled or greenish-black hue, vesicles filled with *dark fluid* rise upon the surface, and the swelling, at first hard and tense, put on a doughy character, then we have gangrene to deal with, and should treat it accordingly, by mild local antiphlogistic treatment; and if there is much local tension, by free incisions. When fetor appears, it should be diminished by antiseptic applications, such as carbolic acid, the chlorides and charcoal. If the gangrenous parts are large, these substances may be applied in the form of solution, or the charcoal may be dusted upon the part; if small, they may be used in poultices.

The sloughs should not be pulled away, nor should stimulants be applied to the living tissues, unless the sloughs do not readily separate; but diluted balsam of Peru, very dilute nitric acid or opiate lotions may be applied. Parts quite dead, but that do not separate readily, such as tendons, ligaments and bone, may be cut off. But nature should be allowed to *eliminate all small parts*, such as fingers and toes. Amputation may be performed where the part involved is large, as an arm or a leg.

Of the numerous applications to *frost-bite, chilblain* or *pernio*, Dr. S. D. Gross prefers the dilute tincture of iodine. In obstinate cases he has found great advantage from blistering with cantharidal collodion.

Mr. Fergus, of Scotland, recommends the following, one application having usually proved sufficient in his hands:

212. ℞. Acidi sulphurosi, f.℥iij.
Glycerinæ,
Aquæ, āā f.℥j. M.
For a lotion.

It should be applied thoroughly with a camel's-hair brush, and is especially indicated in the itching, burning stage of the complaint.

PROF. THEODOR BILLROTH.

In the treatment of chilblains, regard must be had to constitution and occupation. Chlorosis and menstrual disturbance in women predispose to them. Employments requiring frequent change of temperature have the same effect. It is usually difficult to combat these causes, hence we are chiefly limited to local remedies. Of the many recommended, Dr. BILLROTH has himself tested satisfactorily the effect of the following, one or the other of which will generally be found effective in removing this troublesome condition :

213. ℞. Hydrargyri ammoniati, ℥j.
Adipis, ℥j. M.
Apply night and morning.

214. ℞. Acidi nitrici, f.℥j.
Aquæ cinnamomi, f.℥iv. M.
For a local application; the part to be painted twice daily.

215. ℞. Argenti nitratis, gr. x.
Aquæ, f.℥j. M.
For painting the frost-bite.

Friction with fresh lemon juice also answers. Hand or foot-baths with muriatic acid (about f. ℥ ss–ij to a foot-bath, used for ten minutes,) and washing with infusion of mustard seed, are also celebrated. If the chilblains open on the top, they may be dressed with an ointment of silver nitrate.

216. ℞. Argenti nitratis, gr. viij.
Adipis, ℥j. M.
For an ointment.

The surgeon to the Austrian polar expedition in 1874, Dr. KEPSES, used the following with satisfactory results :

217. ℞. Iodinii, 4 parts.
Etheris sulphurici, 30 parts.
Collodii, 100 parts. M.
By weight. Use locally by painting.

Another iodine mixture is the following:

218. ℞. Acidi tannici, ℥j.
Aquæ, ♎j.
Add,
Iodinii, ℈ iv.
Alcoholis, q. s. to dissolve.
Mix and add,
Aquæ, ♎j. M.

This mixture is to be placed over a slow fire and gradually warmed, while the frosted part is immersed and retained in it so long as it can be borne.

PROF. CAZENAVE, OF PARIS.

219. ℞. Hydrargyri ammoniati, gr. ivss.
Chloroformi, ♏ v.
Cerati, ℥j. M.

Apply morning and evening. If the swelling be considerable, and if the chilblains are ulcerated, cover with chamomile cataplasms, and dress with opiated cerate.

PROF. A. GIACOMINI, UNIVERSITY OF PADUA.

220. ℞. Plumbi acetatis, ℥j.
Adipis, ℥j.
Aquæ lauro-cerasi, f.j ℥ ij. M.

A useful pomade, applied morning and evening, to chilblains.

Other applications which have been commended by various authors are as follows:

221. ℞. Acidi carbolici, ℥j.
Tincturæ iodinii, f.℥ ij.
Acidi tannici, ℥ ij.
Cerati simplicis, ℥ iv. M.

Make an ointment.

222. ℞. Tincturæ opii,
Tincturæ croci,
Spiritus ætheris nitrici, partes equales. M.

Apply locally, by brushing on the parts.

223. ℞. Camphoræ, ℈ iv.
Alcoholis diluti, f ℥ iij.
Glycerinæ, f.℥ v. M.

Apply several times a day, to non-ulcerated chilblains.

224. ℞. Extracti opii, gr. iij.
Extracti krameriæ, gr. xv.
Glycerinæ, f.℥ ijss.
Saponis, ℥ ijss. M.

To be rubbed on morning and evening.

225. ℞. Aluminii et potassii sulphatis, ℥ ij.
Aceti,
Alcoholis diluti, āā f.℥ vj. M.

To be applied morning and evening, on non-ulcerated chilblains.

226. ℞. Acidi muriatici diluti, f.℥ ijss.
Balsami Peruviani, ℥ ss.
Spermaceti, ℥ j.
Ceræ albæ, ℥ ss.
Olei amygdalæ dulcis, ℥ j. M.

227. ℞. Tincturæ benzoini, f.℥ j.
Glycerinæ f.℥ ij.
Olei lini, f.℥ ss.
Cerati, ℥ ij.
Spiritus lavandulæ, ♏ xx.

Mix with care. To be used to anoint, morning and evening, ulcerated chilblains.

The following is intended for *suppurated frost-bites:*

228. ℞. Glycerinæ bullientis, gr. lv.
Acidi salicylici, ℥ iij. M.

Apply a thin coating of this solution to the sore with a small brush, then cover with a pledget of cotton, which is to be kept in place with adhesive plaster. If the suppuration is profuse, change the dressing every day; in the contrary case, every three or four days.

PROF. JAMES SYME, F. R. S. E.

229. ℞. Tincturæ saponis cum opii, f.℥ vj.
Tincturæ cantharidis, f.℥ j. M.

For an embrocation.

This should be applied to the chilblain, and the part well protected from cold.

The ulcer of chilblain presents the appearance of a smooth, superficial excavation, with thick white edges and a peculiar viscid, slimy discharge. It heals most readily under the application of the *unguentum oxydi hydrargyri rubri.*

RÉSUMÉ OF REMEDIES.

Alumen, in solution or ointment, is useful.

Balsamum Peruvianum is a useful adjunct to ointments for broken chilblains.

Benzoin. Compound tincture of benzoin often relieves the irritation of frost-bites.

Brassica. Cabbage leaves are a popular domestic remedy for chilblains.

Camphora, mixed with simple cerate, is a soothing application.

Capsicum. The tincture may be advantageously painted over unbroken chilblains. The celebrated "De Rhèims' plaster" for chilbains is prepared as follows:

230. ℞. Capsicum pods, ℥ j.
Strong alcohol, f.℥ ij.

Macerate several days, then add,

Mucilage of acacia, f.℥ ij.

Stir well, and brush over sheets of silk or tissue-paper. Apply like court-plaster to unbroken chilblains. It speedily relieves itching and pain.

Carbolicum Acidum, as ointment, is often efficacious.

Creosotum. Creosote ointment is valuable to allay the obstinate itching and heat.

Ferri Chloridi Tinctura is an admirable astringent for pernio.

Galla. The following formula for Dr. VALENTINE MOTT'S remedy is given in the *Proceedings of the Medical Society of the County of Kings*, 1879:

231.	℞.	Beef's gall,	℥ iv.	
		Ol. terebinth.,	℥ iv.	
		Spts. vini. rect., 90 per cent.,	℥ iss.	
		Tinct. opii,	℥ j.	M.

Hydrargyrum Ammoniatum has been employed. (F. 213, 219.)

Iodinium. Tincture or compound tincture of iodine is the most popular and perhaps the most generally efficient local application to the unbroken skin in frost-bite. The ointment is also employed.

Iodoformum.

232.	℞.	Iodoformi,	℥ ij.	
		Extracti conii,	℥ j.	
		Acidi carbolici,	gtt. x.	
		Unguenti aquæ rosæ,	℥ j.	M.

Spread on lint, and apply to the parts twice daily.

Magnesiæ Sulphas. Dr. R. E. HOWARD (*Medical Herald*, Nov., 1879,) recommends a *saturated solution of sulphate of magnesia*, applied on lint, and small doses of it internally. In a severe burn from concentrated lye, he says he never saw a remedy act more promptly and satisfactorily.

Plumbi Acetas. GOULARD'S cerate or lotion is particularly useful in the early stages.

Querci Cortex. The popular reputation of oak bark is owing to the tannin it contains.

Sulphurosum Acidum is highly praised by Mr. FERGUS.

Tannicum Acidum. This astringent is called for in the second stage, when the inflammatory symptoms have subsided.

VII. LESIONS OF THE CONNECTIVE AND MUSCULAR TISSUE.

Abscesses—Bed-sores—Carbuncles and Boils (Anthracosis and Furunculosis)—Felons (Whitlow, Paronychia)—Ulcers (Sores.)

ABSCESSES.

MR. GEORGE W. CALLENDER, OF LONDON, SURGEON TO ST. BARTHOLOMEW'S HOSPITAL.

This surgeon recommends the treatment of abscesses by hyper-distension with dilute carbolic acid. The operation may be performed whilst the patient is under the influence of ether, or the integuments may be frozen by the ether-spray. The following are required: a scalpel where an incision is needed, no open sinus existing; carbolic acid lotion (one part in twenty) diluted to one in thirty by the addition of warm water before using it; a perforated elastic drainage-tube; carbolized oil (one in twelve) on lint, for dressing the wound, and gutta-percha tissue for covering this; some ordinary adhesive plaster; some tenax to receive any subsequent discharge (which, however, is very slight); an ordinary two or four-ounce syringe. When it is desirable to make continuous pressure over an abscess after opening it, a pad shaped to the needs of the case, and filled with shot, will be found useful. It acts more effectually than a sand-bag, and is easily made and adapted.

The operation is begun by cutting into the abscess (if no sinus exists), the opening made being of sufficient size to admit one of the fingers. The pus is then allowed to escape, the abscess being emptied as completely as possible. The nozzle of a syringe is next passed through the opening, and the skin is drawn closely around it by the operator with his left hand; the contents of the syringe are then passed into the abscess-sac. Care must be taken, in doing this, that no pressure is made upon the abscess-wall, or the distension of the sac will be incomplete. Either by using a syringe which throws a continuous stream, or equally well by closing the wound with a finger whilst the syringe

is being re-filled by an assistant (very little fluid being lost by its re-introduction), the abscess sac will presently distend quite to, and even beyond its original size; and, under these circumstances, the carbolized water necessarily finds its way (as a rule, which has few exceptions,) into all parts of the cavity, however irregular, and along any channels leading from it. When the abscess has been opened, the amount of injection may be roughly measured as being rather in excess of the quantity of pus let out. When distension has been effected, the fluid is allowed to escape, and if much pus be mingled with it, a second injection may be practiced. An elastic drainage-tube, its size varying with that of the abscess, is then inserted and secured, and over the end of this, and over the wound, a piece of lint, twice folded and soaked in cabolized oil, is laid. This is covered with a sheet of gutta-percha tissue and some tenax, and these dressings are secured with some ordinary plaster.

Subsequent treatment consists in the renewal of the dressings, which it is desirable to see to daily. The drainage-tube is gradually shortened as the abscess-wall contracts, and through its canal, if there be any signs of puriform discharge, a little carbolized water may be occasionally injected.

DR. G. WERTHEIM, VIENNA.

This surgeon claims good results from injecting abscesses with various solutions, especially of *morphia*. (*Wiener Medicinische Wochenschrift*, No. 83, 1868.)

He punctures the abscess with a thick needle, or the canula of a Pravaz' syringe, and with gentle pressure empties the greater part of the pus. Then a Pravaz' syringe, with blunt canula, is applied, and the solution thrown in. The orifice is closed for a few minutes by pressure with charpie, and then iced cloths are applied over the abscess. The patient is then instructed to remove, by gentle pressure, every three hours, the remaining fluid; if necessary, the orifice or puncture may be kept open by the use of a fine probe occasionally. At first the injections are made every day, subsequently at longer intervals. It is better that the patient should remain in bed during treatment. The cold applications are continued with intermissions.

Of morphia mur. he uses at first gr. $1/7$ in 8 drops of liquid; should two abscesses exist, the dose must, of course, be divided between them, with a slight increase. He has also used a filtered emulsion of camphor, solutions of cupri sulphas (gr. j–ij ad f. ʒ j), chloride of lime

(gr. j–v ad f. ℥j) and aqua creosoti; of these, twenty drops were injected two to three times daily.

The results of this treatment were as follows:

1. An immediate cessation of pain.

2. A decrease of the other symptoms of inflammation. Never were local or general reactions observed.

3. Dilution of the thick exudation, reduction of its quantity, and in three to four weeks entire disappearance of the same. Cure without a scar.

4. The suppuration is also restricted to those parts in which it is found when there is general fluctuation of the abscess; for any surrounding hardness delays the cure, as the discussion of this requires considerable time.

RÉSUMÉ OF REMEDIES.

Belladonna, both externally and internally, is often effectual in dissipating threatened abscess. Mr. CHRISTOPHER HEATH has given cases in which it obviously prevented the formation of abscesses in the neck and elsewhere.

Carbolicum Acidum is used in solution of gr. x–xx to aqua f. ℥j, as an injection after evacuation. Also used by Mr. CALLENDER for hyper-distension. (See above.)

Hydrargyrum. Various preparations of mercury are used by plaster and inunction to dispel and prevent abscess. Of these the *oleate* is efficient and neat.

Iodinium in solution injected into the cavities of large abscesses after evacuation often proves very serviceable.

Phosphates. The phosphates of lime and soda are said to be useful internally to prevent the tendency to abscess. The dose is gr. j–ij twice or thrice daily

Potassii Permanganas, ℥j to aquæ Oj, is a valuable injection to correct fetor.

Potassa Fusa. In using caustic potash or other alkali to open an abscess, pieces of plaster with a hole in them of the requisite size should be placed one over the other, and the caustic applied to the skin exposed through the hole. The caustic, slightly moistened, should be rubbed on the surface till it assumes a dull, bluish look, and the cuticle easily rubs off. The plaster may then be resumed, and the surface washed with vinegar and water to neutralize any remaining alkali. A poultice will help the separation of the dead parts and ease the pain. Mr. ERICHSEN prefers to open those abscesses with caustic where the skin is much undermined, congested and discolored. Professor GROSS discards it for this purpose altogether. Instead of the potassa fusa, the Vienna paste is preferred by many.

233. ℞. Potassæ, Calcis, Alcoholis, āā partes equales. q. s.

To make a paste.

It is milder in operation than the potash alone.

Sulphides. The sulphides of potassium, sodium and calcium have been warmly recommended by Dr. SYDNEY RINGER as preventive and curative in the tendency to large indolent abscesses.

234. ℞. Calcii sulphidi, gr. $\frac{1}{10}$–$\frac{1}{2}$.
Sacchari lactis, q. s. M.
For one powder. Four to six daily.

He says any one who will give the sulphides a fair trial will be gratified with the result.

Tannicum Acidum. A solution of tannin has been used to inject into old abscesses to arrest excessive secretion.

BED-SORES.

The treatment of bed-sore is largely preventive. It is important, by the use of air-cushions and slight changes of posture to avoid long-continued pressure on the same part. In addition to this, the surface should be repeatedly painted with some preparation adapted to stimulate and strengthen the cutaneous vitality.

When the skin is once broken, the removal of pressure is imperative, and the system must be built up with nutritious food, stimulants and tonics. Locally, antiseptic and stimulating applications are required. The preparations most valued as preventives and curatives are given below.

PROF. THEODOR BILLROTH.

The surgeon should be constantly on his guard against bed sores in all diseases at all prone to decubitus. A well-stuffed horsehair mattress is the best sick-bed. The sheets placed over it should always be kept smooth, so that the patient shall not lie on wrinkles. As soon as any redness appears over the sacrum, the attendant should be doubly careful about the passage of urine and fæces, so that the bed should not be wet. A lemon should be cut and the reddened spot rubbed daily with the fresh juice from the cut surface. If there be excretion over the sacrum, the patient should be placed on a ring cushion, or else on a caoutchouc air or water-cushion. The excoriation may be painted with nitrate of silver, or covered with leather spread with lead plaster. If the sore be gangrenous from the first, and this begins to extend, we should resort to the ordinary treatment for gangrene.

RÉSUMÉ OF REMEDIES.

Alcohol, applied pure, or as whisky or eau de cologne, if used before redness occurs, will aid in hardening the cuticle.

Alumen. A saturated solution of alum, with as much tannic acid added as it will take up, is one of the best preventives of chafing.

Argenti Nitras. A solution of gr. xx to the ounce may be painted on the threatened but unbroken skin as soon as it becomes red.

Balsamum Peruvianum. After the sore has formed this is an excellent dressing.

Camphora. Tincture of camphor painted on the part is a good preventive.

Carbo. Dry charcoal sprinkled thickly over the black slough which forms in a bed-sore, hastens its separation and corrects the fetor.

Emplastra. Lead plaster and soap plaster are used as protectives. They should be spread on very soft kid, and be not so thick or hard as to lose their pliability. They must not be allowed to crease or rumple. Professor GROSS uses them rarely, as it is so difficult to keep them smooth.

Glycerina, pure, or glycerine cream rubbed over parts exposed to pressure, after washing, morning and evening, is one of the best preventives.

Hydrargyrum. Mr. HOLMES recommend the bichloride of mercury, gr. ij to alcohol f.℥j, for painting the part exposed, before redness or chafing appears.

Iodinium. If the part is brushed once or twice a day with tincture of iodine, at first diluted and then pure, abrasion is often prevented.

Iodoform. A healing application. The open sore should be dusted with finely-powdered iodoform, and then covered with oiled lint, or other bland applications.

Myrrha and similar vegetable aromatics and astringents are used as preventives.

Ricini Oleum. Equal parts of castor oil and balsam of copaiba make an excellent application to the sore.

Tannicum Acidum. See *Alumen*.

CARBUNCLES AND BOILS (ANTHRAX AND FURUNCULUS).

THE ABORTIVE TREATMENT.

DR. PETER EADE, OF LONDON.

This practitioner, in an article in the *British Medical Journal*, July, 1876, maintains that boils and carbuncles are specific parasitic diseases; that in their early stages they may be infallibly destroyed and aborted by destruction of their central stem or root; and that even after this stage has passed, they may generally be destroyed, and in all cases,

at the very least, greatly modified, by the free application of carbolic acid; and that to produce this result the acid must be freely introduced into the central portion of the disease, and also into any other part where an opening exists or is formed artificially.

The essentials for the proper action of the carbolic acid Dr. E. conceives to be:

1. The acid must be applied in *strong* solution:

235. ℞. Acidi carbolici, f.℥ss.
Glycerinæ, f.℥j. M.

2. It must be brought into contact with the diseased tissue, for it appears to exert no influence on or through the unbroken skin. To this end, if sufficient openings do not exist when the case is first seen, a proper one must be fearlessly made in the very centre of the disease by some appropriate caustic, and, perhaps, the acid nitrate of mercury effects this better and with less discomfort than any other.

3. The acid solution must be occasionally re-applied to, and into, the hole thus formed, or those already existing. He has found it a good plan to keep a piece of lint, wet with a weaker solution, constantly over the sore.

This abortive treatment of boils and carbuncles has been very highly commended by Dr. THEODORE ROTH, of Eutin, Germany. The pain is relieved in a few hours, and three or four days effect a cure.

A somewhat similar plan is that of M. JOLI, who paints thoroughly the parts with the following:

236. ℞. Acidi carbolici, gtt. viij.
Acidi tannici, ℈ij
Olei ricini gtt. xl.
Collodion, f.℥j. M.

Prof. S. D. GROSS believes that it is seldom that a boil can be made to abort. He has, however, occasionally succeeded by a brisk purge, and the application of iodine. He prefers, however, to poultice the part, and make "an early and free incision." In many cases of carbuncle, he has found nothing so beneficial as a blister, large enough to include a considerable portion of the healthy skin, and retained until there is thorough vesication. Penciling the surface well with tincture of iodine, and then covering it with the following mixture, sometimes produces a very soothing effect:

237. ℞. Ol. terebinth.,
Ol. olivæ,
Tinct. opii, āā f.℥j. M.

Mr. J. L. ERICHSEN recommends that in the very early stage of carbuncle, when the disease appears as a small, angry, pointed vesicle, situated on a hard, brawny base, its further progress may often be completely arrested by opening the vesicle and rubbing its interior with a pointed stick of potassa cum calce or nitrate of silver.

The method by *vesication* is that employed by the Parisian surgeon, JULES GUERIN. He teaches that the most efficacious mode of cutting short the progress of a carbuncle, and hastening its cure, is to cover the whole of the inflamed part with a large blister, having a hole in its centre to admit of discharges. The blister must be continued on until complete vesication has taken place, and any portion of the carbuncle over which this has not taken place will remain hard and resistant. When the blister has taken effect the pain is at once relieved, and the redness and resistance of the tumor disappear, and it becomes benign and inert, its enucleation proceeding under the use of ordinary means without the aid of the bistoury. When, after the discharge of its contents, a deep excavation remains, it is useful to apply to the walls a solution of nitrate of silver, with the object of obliterating the open vascular orifices, and impeding the absorption of the diseased liquid.

Dr. C. B. HALL, of Cincinnati, in the Cincinnati *Lancet and Observer*, December, 1873, gives the following prescription:

238. R. Tinct. arnicæ florum, 2 parts,
Acid. tannic., 1 part.
Pulv. acaciæ, 1 part.

A fragment of lint wet with this mixture to be placed upon the boil and changed every fifteen minutes until a coating is formed. This causes the throbbing pain to disappear, diminishes the tension of the integuments, causes the abortion of the boil, or, if too late for that, hastens the separation of the core.

Some surgeons report favorable results from the early application of pounded *ice* to an incipient furuncle; while others extol the value of early and liberal applications of *mercurial ointment*.

GENERAL TREATMENT.

The general treatment of boils and carbuncles in their more severe forms, must, in nearly all cases, be supporting and hygienic. The surrounding should be salubrious, and a change of air is very desirable. All irritants of the skin must be avoided, such as cold baths, flesh-brushes, coarse towels, etc. At the outset, a moderate mercurial

purge is often extremely beneficial. When marked gastric derangement exists, an emeto-cathartic is advisable, as,

239. ℞. Hydrarg. chloridi mitis, gr. x.
Pulveris ipecac., gr. x–xx. M.
For one dose.

This should be followed by free drafts of chamomile tea or infusion of valerian (GROSS.) This may be followed by bark, quinine and acids, with wine or porter. The urine should be examined for sugar, as it is not unfrequently present in these eruptions, and requires appropriate treatment.

Professor HARVEY, of Paris, recommends the free use of *tar water*, about a quart a day, which may be drank mixed with a light wine, especially in furunculosis.

The internal use of *arsenic* has many advocates (see below.)

The propriety of using the knife in carbuncles, either by crucial incision, by subcutaneous sweeps, or by the total excision of the diseased structure, all of which methods have their warm partisans, has been seriously questioned and wholly rejected by such eminent authorities as DUMREICHER, BILLROTH, DITTEL, LE GROS, CLARK and

SIR JAMES PAGET.

This last-mentioned surgeon entirely rejects the use of the knife, and even dissuades all administration of stimulants or medicines, except opium when needed to allay pain. He discountenances confinement to bed, or the house, holding that fresh air is very conducive to recovery, and that nothing is really needed beyond keeping the parts clean, and avoiding the contact of the parts with the neighboring integument. This may readily be accomplished by the application of any soothing plaster. He does not believe carbuncle is a dangerous affection, and thinks that the patients who have died of it really died either of the treatment or of some visceral disease which preceded it. (*Clinical Lectures*, 1875.)

PROF. S. D. GROSS

Considers that when anthrax has passed into a gangrenous condition, as shown by the cribriform and boggy condition of the tissues, there is no question but that free and deep incisions are demanded. The operation relieves the pain at once, and checks further extension of the morbid action. Caustics he considers far inferior to the knife. The

dead tissues may be removed with the scissors, and the surface of the ulcer touched with nitrate of silver. The wound may be cleansed by syringing with a weak solution of carbolic acid or other disinfectant; and when it assumes a healthy aspect it may be dressed with a mild ointment, as ceratum opii or balsam of Peru. An alterative course of iodide of potassium, not more than gr. ijss in the twenty-four hours, with general sanitary surroundings, will prevent the return of the disease.

MR. T. HOLMES

Prefers the use of the caustic potash to the knife. He has found it equally efficacious in relieving the pain, and checking the spread of the sloughing, without any drawback of either shock or hemorrhage, both of which are often serious in large carbuncles. When the skin has not given way, the potash is freely rubbed on till a slough has formed, or, what he considers the better plan, the skin is divided by the scalpel, and the caustic inserted. Small pieces should be put in the incision and allowed to remain there. He adds that it is many years since he has practiced the free incision of carbuncles, preferring the method here described.

MR. M. A. WARD, OF DUBLIN.

This surgeon, (*Dublin Medical Journal*, No. 69, 1877,) makes one incision about an inch and a half or two inches long, as the case may be, over the centre of the carbuncle, when the slough has formed, and from four to six counter-openings round the central one, varying in size from a quarter to half an inch. He then plugs the openings with strips of lint steeped in some stimulating application, and lays a poultice over all, dressing the carbuncle in the same way every day until all the sloughs have separated. The advantages Mr. WARD claims for this method are: First and most important, all the integument is preserved. Second, it has all the advantages of the mode of treatment by crucial incision, without any of the disadvantages. Third, there is almost entire freedom from hemorrhage. Fourth, the occurrence of a large suppurating sore is avoided. Fifth, sufficient space is afforded for the escape and removal of dead cellular tissue. Sixth, very slight cicatricial marking results.

DR. E. SCHNEIDER, OF BELGIUM.

This surgeon objects to the application of caustics on account of the

slowness of their action and the pain they cause. The eschar is often tedious in separating, and they implicate at times the healthy tissue. Their superficial action, he thinks, sometimes imprisons matter, the escape of which should be favored. The method he prefers is to incise the anthrax freely in different directions, slightly extending beyond the limits of the diseased action in both length and depth. He then promptly fills these incisions with lint dipped in a solution of *perchloride of iron* of 30° Dry lint, a compress, and a bandage moderately firm, complete the dressing. After twenty-four or forty-eight hours, the lint loosens, and shows a wound of good appearance, which proceeds promptly to cicatrization. There is no risk from hemorrhage, and no delay in checking the disease. (*Journal des Sciences Medicales de Louvain*, February, 1877.)

DR. O. FERRALL, OF DUBLIN.

The treatment of carbuncles, which, in the opinion of this gentleman, should supersede all others, is that by *pressure*. Adhesive strips are applied concentrically, commencing at the margin of the tumor with narrow strips, overlapping each other slightly, until within half an inch of the centre, which space is left open for the discharge. Usually these strips will be found loosened in twenty-four or forty-eight hours. New ones should then be applied.

This method has been adopted by Prof. JOHN ASHHURST, JR., of Philadelphia, and other American surgeons, and they report that it relieves the patient of pain promptly, and cures in less time than incisions, while it also avoids the risks which accompany the use of the knife. Mr. S. MESSENGER BRADLEY, of Manchester, also believes that the cure of boils and carbuncles is expedited, and the pain is lessened, by such treatment. The simplest, and at the same time the most effectual method of accomplishing the pressure is by placing a piece of sheet lead, with a hole cut out of the centre large enough to encompass the base of the carbuncle, and then, by means of elastic straps and a lace, affixing it firmly to the part required. Any one can manufacture such an appliance in a few minutes, the size of the lead sheeting and the length of the straps, of course, being proportioned to the size of the tumor and the part of the body to which it is to be applied.

DR. JAMES GREY GLOVER, OF LONDON.

This writer, in the *Practitioner*, January, 1870, disapproves both of

incision and the administration of stimulants in carbuncle. The medical treatment he recommends is:

240. R. Quiniæ sulphatis, gr. ij.
Tinct. ferri chloridi, ♏ x–xv. M.
This amount thrice daily.

A grain or two of opium, if called for to give rest, should be exhibited every night. The diet should be good and nourishing.

Beef tea, milk, and a glass or two of wine daily, are allowed. Locally he uses,

241. R. Unguent. terebinth.,
Adipis, partes equales. M.
This is applied over the surface of the carbuncle, and upon it a large piece of cotton wool. It should be changed twice or thrice a day.

DR. J. H. DIBBRELL, JR., ARKANSAS.

This practitioner observes, in the *Medical and Surgical Reporter*, March, 1877, that experience seems to have demonstrated that carbuncles do far better without any treatment whatever than when subjected to deep and extensive incisions. A simple puncture, when the tumor is hard, brawny and painful, will sometimes greatly mitigate the pain, but will not in any degree limit the extent or duration of the disease, or tend to arrest the sloughing process.

The use of *collodion*, in conjunction with carbolic acid, has yielded, in his practice, such satisfactory results as to induce the belief in its superiority over other modes of treatment. He combines it with *carbolic acid* as follows: when the carbuncle is seen early, he punctures it, and, with a camel's-hair pencil or small pointed stick, introduces into the opening thus made pure carbolic acid. If the disease has made greater progress, and one or more small, acne-like pustules have made their appearance on the tumor, these are carefully opened, which can be done without causing pain, and the acid introduced at each opening, as before indicated. The effect of the acid when first applied, especially if it touch a denuded surface, is to produce a sharp, stinging pain, which is, however, of but momentary duration. The next effect is local anæsthesia, and the patient is for a time, perhaps hours, free from pain.

Carbolic acid, possessing, in a notable degree, anæsthetic, antiseptic and caustic properties, seems to be peculiarly adapted to the treatment of the disease under consideration, which is usually attended with great

pain, sloughing, and an intolerable odor. Its use certainly diminishes the pain, corrects the odor, and arrests the sloughing process with much promptitude.

After the acid has been applied, collodion should be several times painted over the carbuncle, and beyond it, a few lines, on the uninflamed skin. *All the openings are to be left free,* in order to give egress to discharges. Each layer or film of the collodion should be allowed to dry before another is put on. This dressing may be renewed once daily, and the collodion previously applied, if partially detached, should be peeled off before a new application is made. If the part on which the carbuncle makes its appearance be covered with hair, this should be cleanly shaved off, otherwise the collodion will be difficult to remove, and at the same time cause considerable pain.

242. ℞. Aquæ chlorinii, f. ℥ ss.

This amount, given three times a day, has been highly commended in furunculous disease, by Dr. T. N. WYLIE, of Texas. (*Medical and Surgical Reporter,* May, 1873.)

243. ℞. Acidi sulphurici diluti, gtt. xx.

This amount to be given in a glass of water three times a day. It is recommended in the *Medical and Surgical Reporter,* 1873, by Dr. MADISON MARSH, as almost a specific in furuncular disease.

PROF. SIDNEY RINGER, OF LONDON.

This excellent authority highly extols, in anthracosis and furunculosis, the external use of the sulphides, as:

244. ℞. Calcii sulphidi, gr. $\frac{1}{10}$–$\frac{1}{6}$.

This amount in a pill, five or six times daily.

For a local application to carbuncles and abscesses he has found nothing give greater relief than this:

245. ℞. Extracti belladonnæ,
Glycerinæ, āā q. s.

Make an ointment and apply to the part.

Physicians who have made a trial of this treatment report on it very favorably. In the *Lancet,* February, 1877, one details a case of furunculosis thus managed, and adds:

"This case serves to illustrate in a remarkable manner the action of this drug. I have used the sulphide latterly in all similar cases with the most pleasing results, and have always found the patients spon-

taneously enthusiastic over the treatment. I could multiply evidence if space allowed. I am quite sure that any one who gives the sulphides a fair trial will never like to be without them in treating any case in which suppuration takes place or is threatening."

M. DE SAVIGNAC, OF PARIS,

In obstinate furunculosis, employs the alternative use of *sulphate of soda* and *arsenic*. The latter is pushed to its constitutional effect, while the former is used only as an occasional purgative.

DR. JAMES T. HEADY, OF KENTUCKY.

Make a crucial incision about one line in depth, at right angles, entirely across the discolored parts, where death or partial death has taken place. Into these incisions, along their entire extent, apply some finely-powdered *corrosive chloride* of mercury. The quantity in no case must exceed one-half grain, otherwise disagreeable or dangerous results may follow. After the incision and the application of the chloride, a poultice, or resin cerate on lint, should cover the parts affected. Within twenty-four hours afterward, a complete line of demarkation will have been formed, and the parts within that line will be insensible, hard, dry and resembling rotten wood. The slough will separate in a few days, leaving a healthy, granulating surface.

Some physicians have reported benefit from :

246. ℞. Potassii permanganatis, gr. xxx.
Aquæ destillatæ, f.℥j. M.
Use as a dressing.

MR. GEORGE COWELL, OF LONDON.

This writer, (*Practitioner*, February, 1872,) recommends commencing the treatment by applying *nitrate of silver* freely over the surface of the carbuncle, repeated, if necessary, once or twice after intervals of two days. After the application, a small pad of dry lint is bandaged over the part. Later on he uses poultices and carbolic-acid lotion.

DR. A. WAHLTUCH, LONDON.

247. ℞. Liquoris plumbi subacetatis, f.℥ij.
Acidi sulphurici, ♏ xx.
Aquæ, Oj. M.
Apply locally in anthracose swellings and gangrenous ulcerations.

DR. L. DUNCAN BULKLEY, OF NEW YORK.

246. ℞. Sodii hyposulphitis, gr. xxx.
Aquæ, f.℥iv. M.
This amount three or four times daily, on an empty stomach, in furunculosis.

Dr. BULKLEY considers this a most valuable remedy to prevent the tendency to boils. When it fails, which has rarely happened in his hands, he gives large doses of quinine.

DR. ISAIAH THOMAS, WEST CHESTER, PA.

This physician has found a decoction of the black alder, *Prinos verticillatus*, of undoubted advantage in carbuncle and anthracose disease. Two ounces of the bark to three pints of water, boiled to a quart, is a proper proportion, of which a wineglassful three times a day may be taken.

DR. DELIOUX, FRANCE.

247. ℞. Sodii arseniatis, gr. iss.
Aquæ destillatæ, f.℥ vjss. M.
A teaspoonful in the morning before eating, and in the evening before the last meal, to persons affected with furuncles.

The author administers this arsenical solution during three weeks; he then purges the patient with from five drachms to an ounce of sulphate of sodium. For drink, an infusion of sarsaparilla (℈iv to the pint.) *Diet*, non-nitrogenous, in which the fresh fruits ought largely to enter; complete abstinence from acids and alcoholic stimulants. When the furuncles are hard and slow, the following ointment may be employed:

248. ℞. Sulphuris loti, gr. xv.
Camphoræ pulveris, ℥j.
Cerati, ♏vij. M.
The application of tincture of iodine at the *début* of an inflammatory furuncle sometimes causes it to abort. Feeble sulphur-baths, with the addition of gelatine, as well as bran and starch-baths, are useful.

RÉSUMÉ OF REMEDIES.

Aqua Picis has been recommended by Professor HARDY.

Argenti Nitras is preferred as a caustic to abort boils by some surgeons.

Arnica. This has been highly extolled in boils, both for external and internal use, by Dr. PLANAT. (*Jour. de Therapeutique*, 1878.) He prescribes gtt. xxv of the tincture every two hours, or externally as follows:

249. ℞. Extracti florum arnicæ, ℥ j.
Mellis, f.℥ ij.

This may be thickened with lycopodium or marsh mallow and applied as a paste on linen. He claims that it cuts short all furuncular symptoms with remarkable promptness.

Arsenicum. The internal use of arsenic is highly esteemed in some forms of furunculosis. Dr. GROSS prefers arsenic in substance, gr. $\frac{1}{15}$–$\frac{1}{10}$ *ter die.*

Belladonna, in extract, with glycerine, is a valued means to allay the pain of boils and carbuncles. Mr. CHRISTOPHER HEATH also recommends its external administration to correct the tendency to their formation.

Calcii Sulphidum is said by RINGER to be very efficient in preventing boils and carbuncles, gr. $\frac{1}{10}$–$\frac{1}{2}$ in a powder with sugar of milk thrice daily. In the boils attending diabetes it is useless.

Camphora. Boils in their early stages, if painted for half a minute with tincture of camphor, and then when the skin is dry, smeared with camphorated oil, and thus repeated a few times, will generally abort.

Carbolicum Acidum. A drop of the pure acid applied to the apex of a coming boil, will sometimes abort it. As a dressing to carbuncles the dilute acid is very serviceable.

Collodion. If collodion be applied at the papular or pustular stage of an ordinary boil, the swelling around the pustule subsides, and the boil is arrested. The collodion should be repeatedly painted upon the part. (See above.)

Ferri Perchloridum. Highly commended by Dr. SCHNEIDER in carbuncle. (Above.)

Iodinium. The tincture or liniment, if applied so as to produce vesication around a boil or carbuncle, is an efficient means, according to Dr. J. K. SPENDER, to reduce the local inflammation.

Hydrargyrum. A plaster of mercurial ointment, applied early, is an excellent treatment in carbuncle. The corrosive chloride has been used later in the disease. (See above.) When there is an obstinate recurrence of boils or carbuncles, slight ptyalism may be required; minute doses of the bichloride are preferable. (GROSS.)

Hydrastis Canadensis, internally, in full doses, (f.℥ ij four times a day,) is especially valuable in preventing recurrent crops of boils in scrofulous subjects. It should be assisted with saline laxatives.

Phosphorus. In cases of obstinate furunculosis Dr. SAMUEL R. PERCY has used his preparation of "vitalized phosphorus" with much advantage.

Potassii Chloras. When the tendency to a recurrence of carbuncle or boil is attended with digestive disturbance, acidity and flatulence, the chlorate of potash, gr. v–x, thrice daily, will often improve the health.

Potassa Fusa is preferred by Mr. T. HOLMES as a caustic in carbuncle.

Potassii Permanganas, in solution, applied on pieces of old muslin, after the carbuncle has been freely divided, has been highly extolled, as relieving pain and checking fetor.

Prinos Verticillatus is of value in carbuncle. (See above.)

Rheum. Furuncles in children generally depend on some disorder of the alimentary canal, as entro-colitis and dyspepsia. In such cases the following prescrip-

tion, from the Children's Hospital, Philadelphia, will be found to act most efficiently in ridding the system of them:

250. ℞. Sodii bicarb., ℥ss–iss.
Syr. rhei aromat.,
Tinct. columbæ, āā f.℥j. M.
Teaspoonful three times a day to a child of two years.

Sodii Sulphis and *Hyposulphis*, in solution, as a dressing, are useful antiseptics.

Sulphur internally is said to act efficiently to prevent recurrence. It has also formed an ingredient in local applications.

Tannicum Acidum is a useful local astringent.

Terebinthinæ Oleum. Painting a boil in its early stage with turpentine occasionally aborts it. Later in its development, turpentine liniment is an excellent stimulant application.

Vesication. Applying a blister directly over a boil or carbuncle is a popular treatment with many. (Above.)

FELON (WHITLOW, PARONYCHIA.)

THE ABORTIVE TREATMENT,

According to Mr. ERICHSEN, occasionally succeeds, if employed early in the following manner: The patient is well purged and placed upon a strictly antiphlogistic diet. The inflamed finger is freely leeched, and then alternately poulticed and soaked in very hot water for twenty-four or forty eight hours, being kept all this time in an elevated position. This sometimes cuts short the inflammation at the outset. If it fails, a free incision must promptly be made.

A writer in the *Boston Journal of Chemistry*, July, 1871, states that he has adopted with much success the plan of applying collodion over the finger and the part where the pain is felt, as soon as it is noticed. The collodion, in contracting, exerts an even pressure, and if kept on for twenty-four hours, the pain, at first increased, will generally disappear.

An excellent abortive treatment of felon is to bind the finger firmly next to the hand with rubber tape. Inflammation will often disappear in twenty-four hours. Even after pus has formed, this method is valuable.

A correspondent of the *Lancet*, July, 1874, recommends the appli-

cation of a small blister directly over the seat of pain, as early as possible.

Dr. DE FORGES claims to have often aborted a felon by having the patient hold the finger for some time in pure alcohol or in camphorated spirits.

When, in paronychia osteosa, the bone becomes necrosed, it should not be removed until loose, when it may be lifted out, and the wound allowed to heal in the ordinary manner.

The advice given by some eminent surgeons (JAMES SYME) to amputate the finger after the destruction of the bone, should not be followed. The retention of the part has the following advantages, viz.: 1. A moderately useful finger is preserved. 2. The symmetry and appearance of the hand is not as much altered as in amputation. 3. By retaining the paccinian corpuscles, the tactile function is intact—a matter of importance in the following of many pursuits in life. 4. The great disadvantage is the length of time the parts take to granulate.

Dr. GROSS observes: "Dead bone is removed as soon as it is easily separable, the periosteum being as little interfered with as possible, and amputation always avoided, experience having shown that a new phalanx is sometimes formed; and even when this does not happen, the boneless finger will be both useful and sufficiently seemly."

ULCERS.

The neglect of the *constitutional treatment* of ulcers is not unfrequently the cause of their obstinate continuance in spite of the most appropriate local applications. In strumous subjects, the special treatment for scrofula is called for; in gouty, scorbutic, syphilitic constitutions, it is vain to expect the part to heal unless the special dyscrasia is likewise removed.

Occasionally, where no cachexia is present, the administration of *tinctura opii*, gtt. x–xx, thrice daily, has been found to favor remarkably the healing process. (Dr. J. B. BURNETT, in the *Medical and Surgical Reporter*, Sept., 1869.)

Where there is general debility, the blood poor and the nutrition feeble, the following is employed at the Philadelphia Hospital as a general tonic:

253. ℞. Tinct. ferri chloridi, f.℥j
Cinchoniæ sulphatis, gr. viij.
Strychniæ, gr. ¼
Syrupi,
Aquæ, āā f.℥j. M.
A teaspoonful for a dose.

Mr. CROFT, of St. Thomas' Hospital, London, has called attention to the value of quinine, in full doses, in serpiginous and phagedenic ulcers. He gives as much as gr. viij, with potassii iodidi ℈j, twice a day, and has seen ulcerations of the most obstinate character rapidly change for the better after these heroic doses were commenced.

M. PAUL GILLAUMET, OF PARIS.

Recently this writer has extolled the *sulphide of carbon* for the local treatment of ulcers. (*Gazette Medicale de Paris*, August, 1876.) Its disagreeable odor, which has been the main obstacle against its employment, can be almost covered by being distilled with one-half per cent. of corrosive sublimate and twenty per cent. of an inodorous fatty body; or it can be diluted by the addition of substances which will render the odor more bearable, such as essence of bitter almonds, essence of mirbane, in the proportion of ten drops to ten grammes of sulphide of carbon; Peruvian balsam, in the proportion of one gramme to thirty; iodine, tincture of iodine and essence of peppermint. The following preparation appears to give the best results:

254. ℞. Carbon. sulphidi, f.℥ss.
Tinct. iodinii, f.℥j.
Essent. menth. piper., ♏iv. M.
For local use.

The application should be made freely twice a day. It is especially useful in indolent or chronic ulcers, and in those showing a tendency to spread, as syphilitic, etc. After the application, the surface should be covered with a mild powder, as starch or subnitrate of bismuth. The pain caused is sharp, but lasts only a few seconds.

Dr. E. MICHEL, of Paris, reports on this agent (in the *Journal de Thérapeutique*, January, 1875,) very favorably.

In order to obtain the desired effect, it is sufficient to touch the ulcerated tissues with a pledget of lint saturated with the liquid in the same way as with most acids. The frequency of the dressings depends on the degree of the chronicity of the ulceration; a very old and inactive ulcer will require moistening every day, whilst less frequent

applications, every two or three days, will suffice for a more recent and excitable ulcer. Sulphuret of carbon is not a caustic, and its contact with the mucous membrane does not leave any scar. Neither does it produce any discoloration except the amount resulting from its constant use, which characterizes reparation of the skin. It gives acute but only instantaneous pain; it is rare that it is not entirely dissipated in a few minutes. This pain, which is somewhat intense on the first application, is less so at the second, and diminishes in proportion as the use of the dressing is prolonged, and as the cicatrizing process becomes confirmed.

DR. JOHN H. BRINTON, OF PHILADELPHIA.

In sloughing and gangrenous ulcers, this surgeon frequently uses *bromine*, pure, or in the following formula:

255. ℞. Bromini, f. ʒ j.
Aquæ, f. ʒ ij.
Potassii bromidi, gr. xxx. M.

Apply to the surface with a small sponge. He has used this agent in very many such cases with wonderful success; it is rarely necessary to make more than one application. (*Medical and Surgical Reporter*, December, 1870.)

DR. T. S. DOWSE, OF LONDON.

The use of *chloral* as an external application in sloughing and atonic ulcers, in abscesses, fungus hematodes, etc., has been highly commended by this practitioner, (*Medical Examiner*, Oct., 1876,) as well as others.

In some cases he first applied a blister, and then treated the blister with a solution of chloral.

Dr. DOWSE uses four solutions of chloral:

Solution No. 1.—Simple Solution of Chloral.

256. ℞. Chloral, ʒ iv.
Water, ℥ j. M.

Solution No. 2.—Glycerine and Chloral.

257. ℞. Chloral, ʒ iv.
Glycerine, ʒ j.
Water, ʒ xvi. M.

Solution No. 3.—Chloral and Chloride of Zinc.

258. ℞. Chloral, ʒ iv.
Solution of chlorinated zinc, ʒ iv.
Water, ʒ xvi. M.

Solution No. 4.—Chloral and Perchloride of Iron.

259. ℞. Chloral, ℥iv.
Solution of perchloride of iron, ℥ij. M.

Mr. LUCAS, of Guy's Hospital, prefers:

260. ℞. Chlorali, gr. iv.
Aquæ, f.℥j. M.

DR. HIGGINBOTTOM.

261. ℞. Argenti nitratis, ℥j.
Aquæ destillatæ, f.℥iij. M.
Dissolve, and immerse in the solution—
Fine charpie, ℥ss.
Dry on a plate.

Some prefer the solution of nitrate of silver of the strength of a scruple to the fluid ounce.

This black charpie is recommended in the treatment of chronic ulcers requiring stimulation.

262. ℞. Calcii chloridi, ℥j.
Opii pulveris, ℥iss.
Aquæ destillatæ, f.℥v. M.
Shake the solution, and immerse a compress in it for application to indolent ulcers of the legs to induce cicatrization.

DR. JAMES BRAITHWAITE, LEEDS.

263. ℞. Acidi carbolici, ℥j.
Aquæ destillatæ, f.℥viij. M.
Apply this to the ulcer by brushing it on, and expose the part to warm, dry air for some hours. It forms a glazed, impervious surface.

MR. THOMAS KIRKLAND, OF LONDON.

264. ℞. Emplastri plumbi, ℥j
Cretæ preparatæ, ℥ss.
Olei olivæ,
Acidi acetici, āā f.℥ss.
Plumbi acetatis, ℈j M.

This is the celebrated "Kirkland's Neutral Ointment," a very soothing application in irritable ulcers, highly commended by Sir BENJAMIN BRODIE and other surgeons.

DR. OHLEYER, OF GERMANY.

265. ℞. Magnesiæ,
Aquæ, q. s.
To form a thin paste.

This, or dusting the surface freely with the magnesia, has proved of much use in atonic ulcers, slow wounds and painful sores.

DR. ROBERT J. GRAVES, DUBLIN.

266. R. Balsami Peruviani, ℥ j.
Olei ricini, ℥ ij. M.

This is to be applied, by means of lint, to the bed-sores observed in prolonged illness, and particularly in typhoid fever. Two or three times a day, linseed-meal poultices are to be applied over the lint, and the ulcerations are to be washed morning and evening with chlorine water.

THE ROOSEVELT HOSPITAL, NEW YORK.

The Roosevelt Hospital treatment of languid old ulcers is that they are dressed with Labarraque's solution (liquoris sodæ chlorinatæ) until the sore becomes surgically clean. The solution is to be diluted with water, according to circumstances. If then the granulations have a healthy appearance, the ulcer is strapped and the limb bandaged. If the granulations become flabby and inactive, a dressing of balsam of Peru is applied, and over that straps and bandage.

Various old surgeons have spoken of the excellent effects of *oleum terebinthinæ* as a stimulant to old ulcers, and it has fallen into undeserved neglect. The surface should be freely painted with it, and lint, wet with it, may be laid upon the ulcerated surface.

DR. BOURGUIGNON, PARIS.

The external use of the tartrate of iron and potash is praised by this writer. He finds that in chronic wounds generally, and especially in varicose ulcers of the leg, with hard, well-defined edges and unhealthy surfaces, this substance acts beneficially, generally effecting a cure in two or three months. He uses a solution of from two to six parts of the salt in one hundred of distilled water, a few drops of ammonia being added to prevent precipitation. Pledgets of fine charpie soaked in this are applied to the ulcer night and morning, and covered over with a thick layer of cerate.

MR. PHILIP COWEN, M. R. C. S. L., LONDON.

267. ℞.	Farinæ (wheat flour),	℥ iv.	
	Acaciæ pulveris,	ʒ j.	
	Tragacanthæ pulveris,	℈ ss.	
	Ovi,	No. j.	
	Cretæ	℥ ij.	
	Aquæ frigidæ,	♁ j.	

Mix and heat to boiling; boil one minute and cool. It should be thin enough to spread with a brush.

The patient, provided with pot and brush, paints the ulcer with this three or four times daily, covering it, when done, with a soft rag. Mr. COWEN claims very good results from this. (*Lancet*, January, 1873.)

MR. ROBERT DRUITT.

268. ℞.	Creosoti,		gtt. xx.	
	Unguenti resinæ,			
	Adipis,	āā	ʒ j.	M.

A good stimulating application in indolent and sloughing ulcers and hemorhoids.

Much praise has of late been accorded to *iodoform* in obstinate and irritable ulcers. Its objection is its penetrating and unpleasant smell. Dr. GUBLER, of Paris, uses the formula:

269. ℞.	Iodoformi,	gr. xv.	
	Ætheris,	f. ʒ j.	M.

In consequence of the rapid volatilization of the ether, the iodoform is reduced to a state of extreme tenuity and covers the surface in a uniform manner.

DR. PARETA, OF PALERMO, ITALY.

270. ℞.	Iodoformi,	ʒ j.	
	Alcoholis,	f. ℥ ss.	
	Glycerinæ	f. ℥ iv.	M.

Wash the ulcers daily with this, and then dust them liberally with iodoform in fine powder.

Iodoform is certainly an admirable local anæsthetic. It may be advantageously used as an ointment, ʒ ij–iv to lard ʒ j.

The same teacher, and others, have also experimented satisfactorily with *pepsin* in obstinate phagedenic and cancerous ulcers. His formula is:

271. ℞.	Pepsinæ,	℥ ss.	
	Acidi lactici,	♁ j.	
	Aquæ	f. ℥ iijss.	M.

Use as a local application to the ulcer.

This, he states, has succeeded after numerous other vaunted remedies had failed.

DR. COMEGYS PAUL, OF PHILADELPHIA.

This writer, (*Medical Times*, November, 1873,) directs attention anew to ordinary commercial *petroleum*, as an inexpensive and efficient antiseptic and stimulating application to ulcerous and suppurating surfaces. He has found the petroleum to be most useful as an application to non-specific, sluggish ulcers, and to all suppurating wounds that have a tendency to heal with an unhealthy and easily-ruptured cicatrix.

As an injection of sinuses, either connected or unconnected with diseased bones, the result will be satisfactory. In a bone-sinus it can be used without interruption, materially diminishing the discharge.

It is valuable in all inflammations of an erysipelatous character, being applied like an ordinary fomentation. The spreading of the disease is, apparently, favorably influenced, and the duration shortened in many cases.

Wounds dressed with petroleum should be thoroughly cleansed, then covered with saturated lint, and where there has been deep-seated destruction of the tissues, charpie, fully impregnated with it, should be packed into the cavities, and the whole overspread with oiled silk, waxed paper, or a piece of muslin spread with lard.

The smell is not at all oppressive, and does not cling to the fingers after ablution.

SIR JAMES PAGET.

272. ℞. Ung. resinæ,
Bals. Peru, partes equales. M.

For senile ulcers They should be well strapped with this, the constitution being supported by a generous diet, warmth, etc.

J. E. ERICHSEN.

273. ℞. Zinci sulphatis, gr. xvj.
Tinct. lavand. comp,
Spts. rosmarini, āā f.℥j.
Aquæ, f.℥viij. M.

This will be found a most useful application to weak ulcers, with high, flabby granulations, such as occur from the too prolonged use of emollient applications.

DR. JAMES B. MOBLEY, OF ALA.

274. ℞. Passifloræ incarnatæ succi, O ss.
Ol. jecoris aselli, f.℥iv. M.

Apply to the surface of chronic ulcers thrice daily.

The soothing and healing action of the juice of the passion flower has been employed in a number of cases by this practitioner. (*Medical and Surgical Reporter*, Aug., 1869.)

The following applications are from various sources:

275. ℞. Olei cadini, f. ℥j.
Pulv. calcis sulphatis, ℥vj. M.
To be thinly spread on dressings for ulcers when the suppuration is profuse.

276. ℞. Hydrarg. chloridi corrosivi, gr. iij.
Spts. frumenti, Oj. M.
To be applied to indolent and scrofulous ulcers two or three times a day, on wet rags or lint.

This is very highly commended by Mr. JOHN MCLENNAN in the *Edinburgh Medical Journal*, March, 1876.

PROF. JAMES SYME, F. R. S. E.

The Indolent and Callous Ulcer.—This ulcer is confined almost exclusively to the legs of people advanced beyond middle age, and constitutes a very troublesome subject of surgical practice, as they are very apt to recur after being healed.

It is distinguished by a smooth surface, generally depressed, of various colors, having no appearance of granulations. The discharge is viscid, tenacious and fetid, the edges thick and white. There is always diffused swelling of the limb, firm and incompressible in character, though there is no circumscribed hardness in the immediate neighborhood of the ulcer.

The treatment generally thought most useful is *rest* in the horizontal position, and *pressure* by means of strapping the limb with adhesive plaster.

A much more speedy treatment, one more lasting in its effects, more economical, easy of application and convenient, is that by *blisters*. The blister applied should be large, covering not only the sore, but a considerable part of the limb. No other treatment is necessary; there is no danger of erysipelas, and the favorable result is almost certain. It is of essential importance that the blister takes in the whole thickened part of the limb

GEO. L. BEARDSLEY, M. D.

In the treatment of indolent ulcers, one of the most important

agents is *cod-liver oil.* Sometimes an ulcer of several years' standing will heal in a few weeks when the patient is put upon regular doses of the oil.

Much attention must be paid to the *diet.* Fermented liquors are especially injurious, and must be forbidden. Alcoholic stimulants are better avoided. A change from animal to fish and vegetable food is often productive of excellent results.

When, however, the patient is feeble and anæmic, tonics, fresh meats and fruits are required.

Locally, when the border of the ulcer is thickened and tense, numerous incisions should be made, and the part thoroughly washed with hot water, holding in solution liquor sodæ chlor., ℥ iij–O j. As a stimulant application, balsam of Peru may be used, or tincture of capsicum, f. ℥ j to aquæ f. ℥ j, which is a convenient and excellent agent. Clean wood-ashes, medicated with carbolic acid, is also an excellent stimulant deodorant application. In case the knife cannot be used, the edges of the ulcer may be painted with tincture of iodine several times a week. Crystals of iodine dissolved in glycerine make a stronger application than the tincture. The iodide of lead may also be used advantageously for this purpose.

Finally, electricity may be employed. This does little good in the advanced stages, when the borders are tough and puckered; but in the first stages of induration, it proves at times surprisingly valuable, healing in a few applications ulcers which for months had resisted the usual resources of the surgeon. Either current may be applied daily, and should indicate its good influence after a few sittings, by rendering the infiltrated tissue soft to the touch and presenting signs of contraction. As a gentle, stimulating application, a weak continuous current has been tried by Mr. GOLDING BIRD, of Guy's Hospital, London, who has reported that it yields quite as good results as any other gently-stimulating measure at the command of the surgeon, and sometimes succeeds when other measures for obtaining cicatrization fail.

RÉSUMÉ OF REMEDIES.

Alcohol. This is an excellent application to sores and ulcers. It covers them with a thin layer of coagulated albumen. (For Alcoholic Dressings, see page 77.) When the ulcer is obstinate, gr. j-v to alcoholis O j, makes a most potent stimulating lotion.

Alumen, applied in dry powder or in solution to relaxed and abundantly secreting sores, is a fine astringent.

Argenti Nitras is an almost indispensable stimulant in the management of old ulcers.

Balsamum Peruvianum is a favorite stimulant, combined with resin ointment, of Sir JAMES PAGET. (F. 272.)

Bismuth makes a useful desiccant astringent application.

Boracicum Acidum has been found by Dr. WARREN GREENE, of Maine, very useful in dressing old indolent ulcers. He uses it in a glycerole or ointment. (*Boston Med. and Surg. Jour.*, 1879.)

Brominium is employed by Dr. JOHN H. BRINTON. (F. 255.)

Cadini Oleum is an excellent form of tar for local use. See Pix.

Carbo, applied locally to sloughing sores, is a useful disinfectant.

Carbolicum Acidum is highly recommended. (F. 263.)

Carbonis Sulphidum is especially useful in indolent ulcers. (F. 254.)

Chloralum Hydratum, in solution, will be found a very satisfactory lotion to foul and recent ulcers. (F. 256–260.)

Chlorinii Aqua. Sloughing and foul-smelling sores may be advantageously washed with this preparation.

Cinchona. Finely powdered Peruvian bark, dusted thickly over foul, indolent, sloughing and even dangerous ulcers, and left to form a kind of poultice, has apparently promoted the healing process.

Conium is often an efficient anodyne addition to ointments.

Creta Preparata is an ingredient in a number of soothing ointments. (F. 264.)

Cuprum. The sulphate of copper, in stick, solution or ointment, is an appropriate stimulant to indolent sores.

Electricity has been employed with very satisfactory results by a number of surgeons, but is limited to ulcers which will yield by moderate stimulation. (See above.)

Farina is used as an application by Mr. COWEN. (F. 267.)

Fecula Iodidum. To clean sloughing sores Professor MARSHALL has employed successfully an iodide of starch poultice, applied cold. (For recipe to make it, see page 38.)

Glycerina, slightly diluted, or carbolated, makes a very good application.

Iodoformum, dusted in fine powder over spreading and painful sores, gives much relief. Dr. MANDELBAUM, of Odessa, says (*Berl. Klin. Wochenschrift*, Nov. 10th, 1878,) all ulcers of the leg, and elsewhere, can be cured by the following method: If they are very deep, with much loss of tissue, and with undermined, uneven, callous edges, they are first to be scraped away until healthy tissue is reached, with the modification of Volkmann's spoon as suggested by HEBRA; they are then to be covered for several days with a thick layer of iodoform until fresh granulations spring up, (as they are certain to do,) and until the base of the ulcer has reached the level of the surrounding skin. When this point in the healing process is reached, the ulcer is to be strapped daily with equal parts of mercurial and soap plaster of rather soft consistence, and carefully and evenly applied. Shallow ulcers, covered only with pus, require no scraping, but can be at once treated with iodoform.

Nitricum Acidum, diluted, is employed as a stimulating wash to the surface of

unhealthy ulcers. In specific infection, it is used in its concentrated form, and is the best of escharotics.

Opium, or some of its alkaloids, is much valued as a soothing ingredient in lotions and ointments to irritable ulcers.

Pepsina has been advocated. (F. 271.)

Pix Liquida. Tar has been used with advantage in the form of ointment, in foul and indolent ulcers. It is a popular remedy for this purpose in veterinary surgery.

Plumbum. The soluble salts of lead form common ingredients in lotions for ulcers. Lead palster is in familiar use.

Potassii Permanganas is well spoken of as a deodorant. In dilute solution it is a mild stimulant. Employed in the form of powder it acts as a gentle caustic, and may often be applied with advantage in sloughing ulcers.

Quiniæ Sulphas. Dr. C. I. WILLIAMS (*Southern Practitioner*, Nov., 1879,) recommends in old sores—

277. ℞. Quiniæ sulphatis, ʒj.
Iodoformi, ϑj. M.
Dust on the ulcer several times daily.

Sodii Boras. A favorite application of Mr. SAMSON GAMGEE's to old ulcers is—

278. ℞. Sodii boratis, ʒ ss.
Tinct. lavand. comp., ʒ jss.
Glycerinæ, f. ʒ jss.
Aquæ, f. ʒ vi. M.
For local use as a lotion.

Sulphides. Dr. RINGER says that a sore discharging a thin, watery, unhealthy ichor will, under the administration of the sulphides of calcium, speedily undergo a healthy change, the discharge becoming at first more abundant, afterwards diminishing, and throughout continuing thicker and healthier.

Sulphurosum Acidum may be used diluted as a wash.

Tannicum Acidum. Tannin, having the property of coagulating albumen, is employed largely to sores with profuse discharge and luxuriant granulations. Added to glycerine, it is a very effective dressing.

Zincum. The sulphate of zinc, as a stimulant and astringent, lessens the secretion and promotes healthier growth in ill-conditioned, free-secreting sores. The chloride, in dilute solution, is a still more energetic article.

The Elastic Bandage. As an important advance in the treatment of ulcers of the extremities, must be mentioned the elastic bandage as employed by Dr. HENRY A. MARTIN, of Boston. He applies it firmly above the ulcerated part, and is so fully convinced of its value that he says that such a bandage *without any other means or appliance whatever*, is all that is necessary for the perfect and *permanent* cure of all curable non-specific ulcers of the leg.

VIII. LESIONS OF THE BONES AND JOINTS.

Bunion and Ganglion—Caries and Necrosis—Osteitis and Periosteitis —Sprains—Synovitis (Arthritis.)

BUNION AND GANGLION.

BUNIONS.

PROFESSOR S. D. GROSS, M. D., PHILADELPHIA.

For the radical cure of this troublesome affection, excision of the sac has been resorted to, but this operation is liable to be followed by erysipelas, and is dangerous. A much safer plan is to divide the sac subcutaneously with a delicate tenotome, cutting it up into numerous fragments, and then penciling the surface of the swelling several times a day with tincture of iodine. This method our author has practiced in numerous cases with gratifying results.

DR. CHARLES H. LOTHROP, OF IOWA.

This writer tried a variety of apparatus, Bigg's, Erichsen's, etc., without benefit, but is satisfied that the following will be found successful. Displacement of the toe is the obstacle to be overcome. A large and wide boot, shoe or slipper must be worn, made of cloth or other light material. A cot, made of muslin or some other firm and soft fabric, is placed upon the great toe of the affected foot. One or more strips of adhesive plaster are placed on and around the heel, their free extremities extending toward the free end of the cot upon the toe. The ends of the plaster and cot are then connected by means of a strong rubber ribbon, so that there is a constant traction of the toe to return to its natural position. If necessary, other strips of plaster should be applied to retain the apparatus in position, one about the instep, and one about the ball of the foot; while another may be bound about the great toe and attached to the second.

The contractile power of the external ligament and abductor pollicis is thus overcome without injury. If they do not readily yield, they

should be partially divided by tenotomy. There is no danger of inflammation of the joints; and, by care and perseverance, the antagonistic power of the internal lateral ligament and abductor pollicis pedis is regained, and the distortion disappears. (*Boston Medical and Surgical Journal*, June, 1873.)

GANGLION.

In this variety of cysts of the tendons, the custom and experience of the surgeon, as well as the age, sex, occupation and position of the patient, usually determine one of the following methods of treatment: Applications, *e. g.*, iodine liniment, or tincture, or blistering solution; pad and strapping; bursting, either by digital pressure, or by striking with the back of a book; incisions, either direct or subcutaneous; drainage, with internal irritation, by passing a stem of thread or silk directly through it. These separately or conjointly, usually produce a temporary, if not always a permanent cure.

The pneumatic aspirator may often be conveniently used to draw off the contents of the sac; after which, if compression be used for a few days, the trouble is not liable to return.

Dr. J. PAULY, of Berlin, constricts the limb by the Esmarch bandage, anæsthetizes locally with the ether spray, (which acts far more efficiently when the circulation is thus impeded,) and opens the ganglion under a carbolic spray, empties it, and dresses it with a Lister dressing.

Dr. BIDDER, of Berlin, recommends the injection of carbolic acid. An ordinary hypodermic syringe, having a sharp needle with a cutting edge near the point, is filled with a two or three per cent. solution of carbolic acid. A fold of the skin being pinched up, the needle of the syringe is thrust under it until the point reaches the capsule of the ganglion. A little slit is made through this with the sharp-edged point of the needle, and then, the latter being slightly withdrawn, the contents of the ganglion are expressed into the surrounding tissues. The point of the needle is then once more inserted into the now emptied ganglion, and a few drops of the carbolic acid solution are injected, and a simple water dressing is afterwards applied.

CARIES AND NECROSIS.

In all cases of caries and necrosis affecting the superficial bones, Dr. F. KIRKPATRICK, Dublin, speaks with the utmost confidence of the application of *potassa cum calce*. (*British Medical Journal*, Aug., 1867.) He introduces it into the fistulæ leading down to the diseased bone, converting them into large openings, so that the carious bone is brought into view and within reach of the further application of the caustic.

MR. POLLOCK, OF LONDON.

The plan proposed by this surgeon (*Lancet*, May, 1870,) in caries and necrosis, and successfully carried out by others, is to expose the diseased bone and apply to it, with a glass brush, a solution of equal parts of *sulphuric acid* and water; or, a lotion of one part of the strong acid to six of water is kept in constant contact with the part by means of pieces of lint saturated with it. The strength of the acid is gradually raised, until it is applied pure.

Dr. EPHRAIM CUTTER, of Cambridge, Mass., has succeeded with a modified form of this treatment, injecting the diseased cavity with the following solution, at first twice a day, afterward once a day:

279. ℞. Acidi sulphurici aromatici, f.℥j.
Aquæ destillatæ, f.℥j. M.

Numerous observers have testified to the great value in such diseases of what is known as "Villate's solution:"

280. ℞. Liquoris plumbi subacetatis, f.℥iv.
Zinci sulphatis,
Cupri sulphatis, āā ℥ij.
Aceti vini albi, f.℥xxvj. M.

This should be used diluted, one part to ten of water, and applied to the part once or twice daily, by means of a sponge and bandage, or injected with a syringe. The solution, when properly made, has a light-green, opaque color. Wine vinegar, not cider vinegar, must be used in preparing it.

Prof. ANDREWS, of Chicago, has obtained excellent results in some cases of carious bones, by injecting them thoroughly, through the orifices of the wound, twice daily, with a solution of *carbolic acid*, ten grains to the ounce.

Of course, whatever local treatment is adopted, it must be backed by tonics, rest, nutritious food, bathing, and hygienic surroundings.

The internal administrations of the phosphates have been supposed, by some, to hasten the formation of healthy bone.

As these affections are so frequently connected with serious general impairment, struma or syphilis, and sometimes with toxical agents, as phosphorus, it is indispensable that whatever local treatment be adopted, the previous and family history of the patient be thoroughly investigated, and constitutional remedies be prescribed to correct any form of dyscrasia or chronic poisoning.

PROFESSOR JAMES SYME, F. R. S. E.*

Caries of the Shafts of Bones.—It is noted, by this distinguished surgeon, that caries is generally seated in bones possessing a cellular or open texture, and when it occurs in those of the tabular or cylindrical kind, it is uniformly preceded by a morbid expansion of the compact structure, into a state resembling that which naturally belongs to those where the disease usually resides. The shafts of bones, especially the tibia, in consequence of chronic inflammation, are frequently enlarged, thickened, and, consequently, loosened in their texture, which comes to have nearly the same appearance as that of the spongy articulating extremities. In bones so altered caries occasionally occurs, but with one important difference from the disease as found in the spongy bones, and this is, that it is *easily curable.*

All incisions, rasping, trephining and cauterization are worse than needless. The disease will yield readily and certainly to the local application of *blisters* and the internal administration of *corrosive sublimate,* in usual doses.

Caries of Spongy Bones.—The treatment of true caries is preventive and remedial. The constitutional defects which tend to the production of the disease, must be carefully sought and combated. Locally, the actual cautery has been recommended; but, in most cases, it can hardly be applied to the affected surface, and its action is too limited. The best method is to destroy the carious bone by excision.

**Surgical Works,* Philadelphia, 1866.

OSTEITIS AND PERIOSTEITIS.

In both the specific and non-specific forms of these associated affections, Mr. T. HOLMES has derived much advantage from the continued use of *iodide of potassium.*

281. ℞.	Potassii iodidi.	gr. v-xv.	
	Tincturæ opii,	gtt. x-xx.	
	Aquæ,	f. ℥ ss.	M.
This dose three times daily.			

When inflammation is severe and suppuration threatening, an incision, reaching from one side of the tumor to the other, often gives instant and permanent relief.

In acute cases, the local treatment should begin by leeching, followed by hot fomentations, poultices and opium. *Blisters* are highly recommended by Professor CROSS. He applies one in such a manner as to cover the whole of the affected surface, and allows it to remain on until thorough vesication is produced. He also attaches much value to the internal use of *calomel,* commenced as soon as the patient is properly depleted, and steadily continued until gentle ptyalism is produced. He says there is no remedy which exerts so powerful and controlling an influence over inflammation of bone as this, and that there are few cases in which it is not applicable.

The value of the *seton,* in chronic osteitis, has lately been urged by Dr. J. A. AUSTIN, of England. (*Lancet,* Feb., 1877.) He introduces one steeped in carbolic oil, and leaves it there for several weeks. It is usually followed by a prompt diminution of the pain and other inflammatory symptoms.

PROFESSOR THEODOR BILLROTH.

Acute periosteitis is always dangerous to life, because pyemia is so apt to occur, especially when the femur is involved, and it is the more dangerous the longer the condition remains acute and the further it spreads.

In the treatment, we can accomplish more if we are called early; one of the most efficient remedies is painting the whole limb with *tincture of iodine.* This should be repeated until large vesicles form. When these dry up, more is applied. The patient is to be kept recumbent, which the pain itself usually enforces. Derivation to the intestinal canal, by saline purgatives, aids the treatment. Should suppura-

tion occur and fluctuation be distinctly felt, openings should be made in such a way that the pus shall escape without being pressed out. If the fever continues, the suppuration remaining profuse, and the pain persistent, we may try the continued application of bladders of ice Great advantage may also be obtained by the application of a fenestrated plaster splint. Much may be accomplished by great care and close attention to the patient.

The use of cups, leeches, mercurial ointment, and other antiphlogistic means, recommended by many at the outset of the disease, are, in Dr. BILLROTH's opinion, inferior to the application of iodine.

Chronic periosteitis must be treated constitutionally with regard to the dyscrasia which induces it (as syphilis, scrofula, etc.) Locally, *rest* of the diseased part is the first and most general rule of treatment. *Elevation* of the part is also a valuable adjuvant, as it avoids congestion by furnishing a mechanical aid to the escape of the blood.

When the symptoms are seen at their commencement, resolution should be aimed for. To effect this, powerful antiphlogistic remedies are of little use. Leeches, cups, purgatives and ice are only beneficial in acute exacerbations; their action is temporary, and may prove hurtful, by exhausting the strength. The bladders of ice, extolled so highly by ESMARCH, are indicated in cases accompanied by great pain, but otherwise are not called for.

The resorbent and milder derivative remedies are those which act the best. Tincture of iodine, ointment of iodide of potash, mercurial ointment diluted with lard, mercurial plaster, ointment made with strong solution of nitrate of silver, hydropathic dressings and mild compression bandages are the most appropriate measures. With these we can attack the disease when commencing, and may succeed in arresting it in its first stage.

If the process progresses, and the caries runs its course without suppuration, we may continue with the above remedies, and, in suitable cases, in vigorous persons, may combine with the above derivatives to the skin, such as fontanelles, the hot iron, etc. If the signs of suppuration begin and abscesses form, there is still a chance that, by continuing these absorbent remedies, re-absorption may be induced.

Should this hope fail, the question arises: Shall we open the abscess, or wait for it to open? On this point, Professor BILLROTH lays down the rule: If the abscess comes from a bone on which an operation is impossible or undesirable (as the vertebræ, sacrum, pelvis, ribs, knee-

joint, etc.,) *do not meddle with it*, but wait patiently till it opens. All the various methods proposed of opening large cold abscesses—subcutaneous puncture, drainage-tubes, caustics, Lister's plans, setons, etc.—are worse than needless, and the surgeon will always regret adopting them. Nothing, in any of these methods, in the least sanctions the claims made for them by their proposers.

In small abscesses originating in disease of the bones of the extremity, it is proper to open freely, as the reaction is insignificant. The wound may then be dressed with stimulating lotions. If the resultant ulcer does not improve under milder remedies, the hot iron may be applied; or the part may be cut; or the whole be extirpated.

SPINA BIFIDA.

DR. BRAINARD, OF CHICAGO.

The use of injections for the cure of spina bifida, were first suggested by this writer, in 1848. His prescription is:

282. ℞.	Iodinii,	gr. ¼–v.	
	Potassii iodidi,	gr. ½–xv.	
	Aquæ destil.,	℥ss.	M.

Half a drachm at one injection.

The rules for its use are:

1. Make the puncture subcutaneously in the sound skin, by the side of the tumor.

2. Draw off no more serum than the quantity of fluid to be injected.

3. Apply pressure during the operation, so that none of the solution enters the spinal canal.

4. If symptoms of irritation appear, draw off all the contents of the sac, and replace them with distilled water.

After the operation the patient should lie on his side; and, if there is much heat, warm, evaporating lotions to the part are required. As soon as the tumor becomes flaccid, it should be covered with collodion or supported by pressure. The injection should be repeated as often as necessary, care being taken that previous irritation has completely subsided.

MR. EDWARD ATKINSON, M. R. C. P., OF LEEDS.

This surgeon has recently reported a case of an unpromising character, cured by the *elastic ligature*. (*British Medical Journal*, May, 1875.) The tumor was in the cervical region, and about the size of a tennis ball. The child was nine weeks old. Having passed a fine elastic ligature four times tightly round the pedicle, he enveloped the tumor in cotton-wool. All the first night the child was restless, crying, and vomiting the breast-milk. Still it sucked, though the milk was rejected directly. A few drops of brandy in a spoonful of warm water, given several times, checked the sickness, and thenceforth it began to thrive. The surface of the tumor soon became vesicated, and the fluid contents oozed away, reducing the bulk. On the fourth day the sac was sloughing. The ligature was partially unwound and tightened up. On the sixth day the pedicle separated, when no hole was visible, nor any oozing of cerebro-spinal fluid from the stump. The sac was examined and found to be a true meningocele. The wound rapidly healed, and the child gained in weight daily, and was discharged at the end of the fortnight. When last seen, there was scarcely any scar to be seen, and very slight deficiency in the bones could be felt. The child was plump and healthy.

PROFESSOR JAMES MORTON, M. D., OF GLASGOW.*

This writer, who is Professor of Clinical Surgery, at Glasgow, holds, with the majority of surgeons, that injection is the most promising mode of arriving at the radical cure of spina bifida, and, in accord with VELPEAU and with BRAINARD, of Chicago, regards *iodine* as the most suitable active agent for the injected fluid. Novelty, however, is claimed for his method, as he uses as an injection, not a simple solution of iodine or a combination of iodine and iodide of potassium, but a fluid called *iodo-glycerine solution*, as follows:

283.	℞.	Iodinii,	gr. x.	
		Potassii iodidi,	gr. xxx.	
		Glycerinæ,	f.℥j.	M.

So named from its components, which are, as stated above, a combination of iodine with glycerine. It was thought that, as this fluid is less diffusible than either a spirituous or watery solution, it will be found

* *The Treatment of Spina Bifida by a New Method*, Glasgow, 1877.

less likely to permeate the cerebro-spinal fluid with rapidity, and so to cause shock or bring on convulsions. The injection of the iodo-glycerine solution, in order to be successful, must be practiced under certain precautions, the most important of which is the prevention of the continuous loss of the subarachnoid or cerebro-spinal fluid.

The results of this method, as shown by the reports of fifteen cases treated by the author and by other surgeons, appear to be most satisfactory, and certainly far surpass those obtained by any previous plan of treatment. Of the seven cases treated by BRAINARD, before the publication of his paper in 1861, in three only was there a permanent and complete recovery. Dr. MORTON states that of the fifteen cases treated by his method, twelve were successful and three fatal, and that all his own lumbar cases have, hitherto, been fortunate. In the operative treatment of spina bifida, some care must, of course, be taken in the selection of cases. Some cases, as the author points out, are so complicated by other defects, as paralysis, hydrocephalus, etc., as to be hopeless. In subjects who have no paralysis, and no deformity of importance, and who, apart from the presence of the tumor constituting a spina bifida, ought to be sound, this new method of treatment may be undertaken, in lumbar cases, at least, with very little fear of an unfavorable result.

SPRAINS.

In the treatment of sprains, surgeons differ somewhat. According to Mr. T. HOLMES, at first, while the active state of effusion is present, antiphlogistic measures are necessary. Where it is grateful to the patient, the sedulous application of *ice-bags* is, he thinks, the best; but if this is not tolerated, leeches, followed by warm fomentations or evaporating lotions, or irrigation with spirit and water, will best check the tendency to effusion. As soon as the patient can bear it, equable pressure, by strapping and bandage, or by splints, with perfect rest, should be adopted.

On the other hand, the eminent VELPEAU, and, more recently, Mr. SAMPSON GAMGEE, of Birmingham, England, have taught that not only can the patient bear well-applied pressure from the first, however great the swelling and acute the pain, but it may be laid down as a

general proposition, to which there is no exception, that, in severe strains, effusion is most surely checked, and once it has occurred, its absorption is most rapidly promoted, while pain is most effectually relieved, by pressure and immobilization. It is as true now as when VELPEAU taught it, that "compression is the sovereign resolvent in contusions with infiltration and swelling."

While cooling and discutient lotions have been generally used, Mr. ASTON KEY recommended *hot* applications, the directions for which are given, as follows, by Mr. JOHN GORHAM (*Lancet*, July, 1876): For a sprained ankle, take a piece of lint of such size that, when folded thrice, it shall be four inches wide and twenty inches long—sufficiently wide and long, in other words, to completely envelop the joint; let this be soaked in boiling water, squeezed out gently, and applied to the limb. Next, take a piece of thin gutta-percha shaving or oiled silk, two inches wider than the folded lint, on which it is laid, with a margin an inch wide above and below, which lies in contact with the skin and prevents evaporation. Lastly, over the whole apply a bandage, and tie the limb on a pillow with two pieces of tape.

PROFESSOR JAMES SYME, F. R. S. E.

The means that afford most relief from the pain directly caused by the injury, consist in the application of *hot fomentations* (see page 35,) and the preservation of perfect rest. The ecchymosis is often considered a warrant for leeching or cupping; but the effused blood cannot be withdrawn in either of these ways, and must be removed by absorption. If symptoms of inflammation come on, blood must be extracted freely, and the other means against inflammation of the joint be employed. After the injured part has ceased to be painful on pressure and motion, and remains merely swollen and stiff, it ought to be supported by a bandage, and have some stimulating ointment or lotion applied to promote absorption. Blistering, warm pumping, the vapor-bath, friction, and gentle, but frequently-repeated, exercise, are useful at the same time and with the same view.

DR. RICHARD O. COWLING, OF KENTUCKY.

The safest treatment of sprained ankle is by immobilization. The first thing to be done is to elevate the limb upon a pillow; next to bathe the feet and joint in *hot* water, which will generally be found

more effectual than cold. It should be as hot as is at all tolerable to the patient, and should be poured upon the ankle while the foot is still elevated and extended over the foot of the bed. During this affusion, which should be steadily continued for half an hour, the foot and ankle are to be gently stroked upward, increasing the pressure as it can be endured, and the joint moved carefully. It is more than probable that the patient will shrink from this portion of the treatment, but a speedy relief from his pain generally re-assures him as to its efficiency.

Comparative ease having been established by this means, immobilization of the joint is best secured by the many-tailed or strip bandage covered by a roller. The strips made of muslin are wet and applied from the roots of the toes to a point eight or nine inches above the ankle. These are covered with a flannel roller carried well up the knee.

The patient thus rendered comfortable may be left, with direction to take an opiate if he is nervous and sleepless, and to remove the bandage if this from any cause induces or aggravates the pain. After four or five days the bandages may be removed and replaced with a plastic apparatus.

SYNOVITIS (ARTHRITIS.)

MR. RICHARD BARWELL, F. R. C. S., LONDON.

In the chronic strumous synovitis, the so-called "white swelling" of the knee-joint, this author (*British Medical Journal*, October, 1874,) believes in the stimulating treatment by means of iodine injections:

284. ℞.	Tincturæ iodinii,	f.℥ss.	
	Aquæ destillatæ,	f.℥j.	M.

This method of using the drug is simple: a syringe with a very fine needle should be used, and care must be taken not to inject into the cavity of the joint, but into the thickness of the morbid tissue. Injection must not be employed when any active inflammatory process is going on; the temperature of the joint must be not at all higher, or but a portion of a degree higher, than that of the other side. There must be either no pain, or only that dull aching which is rather a

sign of fullness of veins than of arterial hyperæmia. Starting of the limb, the symptom above all others which shows that the cancellous stricture next the articular lamella is inflamed, shows also that the time for this treatment has passed by, unless such starting be only occasional, and not severe.

When, in any case, all the favorable conditions are present, he punctures the skin in the softest and most prominent parts of the tumefaction, making from two to four punctures, as the case may demand or permit; into each of these punctures he injects about five minims of the fluid, withdrawing the needle a little as the piston descends. An elastic bandage is applied after the operation.

DR. C. FITZHENRY CAMPBELL, OF SACKVILLE, N. B.

Our author, referring to the practice of Dr. MORITZ, of Coblentz, (*Medicinische Zeitung*, No. 26, 1872,) of employing nitrate of silver, either in solution (ten grains to the fluid ounce) or in substance, as a local application in cases of articular effusions, whether resulting from gout, rheumatism, scrofula or wounds, says that for more than twenty years past, he has been in the habit of applying a solution of this salt (three to eight grains to the fluid ounce) to almost all painful swellings of the joints, whether resulting from blood disease or mechanical injury, with the happiest results. (*The Lancet*, July 1st, 1871.)

DR. P. J. MANEC, OF PARIS.

285. ℞. Ammonii chloridi, ℥ ijss.
Aquæ (or vini rubri,) ℥ j. M.
Compresses, immersed in this solution, are to be applied to the knee, in recent cases.

The articulation is to be moderately compressed, and the bandages kept moist with the solution. Afterwards, recourse is had to flying blisters, if necessary.

DR. METZGER, OF BONN.

The treatment of both acute and chronic synovitis, except that at the hip-joint, is treated by this practitioner with *massage*. The operator sits in front of his patient on a low stool, and the part to be operated on is first shaved and anointed with perfumed lard. The frictions used are divided into two classes; the first, passing from side to side

(horizontal frictions); the second, passing from below upward in the line of the limb (vertical frictions.) The applications vary in force, according to the effect which he desires to produce, and are made, not only upon the joint itself, but also upon the adjacent unaffected tissues. By means of the *horizontal frictions* the skin is moved about over the fasciæ and ligaments, and the superficial vessels are acted upon, partly by the direct application of mechanical force, and partly by the indirect influence of the vaso-motor nerves. The circulation of the blood is thereby increased; and where there is a tendency to venous stagnation, the bluish color is removed, and the skin assumes its natural appearance. The *vertical frictions* are made in the direction of the circulation of fluid in the venous and lymphatic vessels, and promote the flow within them. By a combination of these two methods of manipulation, the one stimulating the action, and the other propelling the contents of the blood-vessels and lymphatics, absorption is necessarily increased.

The operator rubs strongly whenever indurations, infiltrations, or effusions are to be dealt with, and follows from below upward the course of the lymphatic vessels in the extremities. When, for instance, the knee-joint is the subject of treatment, he works across the joint with the fingers of one hand, on both sides, below the patella, pressing inward with more or less force; while the fingers of the other hand work in the same manner, upward along both sides of the patella, over the capsular ligament, or any ligament which is felt to be swollen. This process is continued from three to five minutes. He then grasps the joint with his right hand and, pressing firmly, rubs upward over the patella, as high as the superior insertion of the investing ligaments. This is repeated a number of times, varying according to the circumstances of the case. The applications are repeated once or twice every day.

PROFESSOR JAMES SYME, F. R. S. E.*

This eminent author urges very forcibly the claims of the *actual cautery*, in a condition of articular disease characterized by very distinct features dependent upon ulceration of the cartilages.

These features are—intense pain, aggravated by pressure or motion, and most severe during the night, not confined to the joint affected,

**Surgical Works*, Philadelphia, 1866.

and being generally also referred to the one beyond it, or a more distant part of the limb, which is weakened in its muscular power, disposed to œdematous effusion, and altered in its sensations, being usually hotter or colder than natural, and occasionally feeling as if benumbed. These symptoms may exist for weeks or months with little alteration except in regard to their degree of severity; but if the derangement from which they proceed be allowed to pursue its course without interruption, are almost sure, sooner or later, to terminate in anchylosis or suppuration, with caries of the bone affected. It is in this case that the actual cautery, if properly applied, before suppuration has taken place, may be regarded very nearly, if not absolutely, a certain remedy.

The cautery should be heated to the utmost degree producible by a common fire, and be in size not less than a pigeon's egg, in order to retain its temperature sufficiently. A common poker will answer in case of an emergency. The eschar may in general be about two inches in length, and should be made on each of the two sides where the articulation is nearest the surface. The pain is much less than might be anticipated, and may be readily prevented by chloroform, which for this purpose, need not be employed to its full effect, since the early stage of unconsciousness will protect the patient from any unpleasant recollections of the procedure. A poultice should be applied until suppuration is established, and then some unctuous application, unless it is desired to check or stop the discharge, when the water-dressing may be substituted.

DR. THEODORE BILLROTH.

With regard to the treatment of that form of chronic synovitis called tumor albus, or white swelling (fungous and suppurative articular inflammation,) our author states that the general treatment should be more prominent, the more chronic and insidious the disease. Of course, it should be directed against any dyscrasia which can be detected.

The local treatment is the more effective the more acute the stage. Painting the part with tincture of iodine, flying blisters, wet compresses, gentle compression with adhesive plaster, are all valuable. Or the part may be rubbed with a strong salve of nitrate of silver:

286. R. Argenti nitratis, ʒj.
Adipis, ʒj. M.
For an unguent.

These measures should be accompanied by *absolute rest* of the joint.

If the course of the disease is entirely chronic, and does not yield to these remedies, then we must have recourse to the maintenance of continued moderate pressure on the swollen limb by means of a firm bandage, such as a plaster splint, which, at the same time, keeps the joint perfectly quiet in a suitable position. Before applying the plaster dressing, we may rub the limb with mercurial ointment, or apply mercurial plaster, or even rub in the above-mentioned nitrate of silver ointment. When fistulæ have formed, we may still use the plaster splint, simply slitting it up and putting in new wadding; or one can use splints with openings made opposite the fistulæ.

The old methods by the antiphlogistic treatment and cataplasms, still employed by some, should be discarded. Amputation of the thigh, for white swelling of the knee, should now hardly ever be required; this is to be attributed, more than anything else, to the treatment of the disease by *the plaster bandage*, as above described, a plan chiefly introduced, and persistently carried out, by Professor Von Langenbeck.

In some subacute cases, *cold* is an excellent application. Esmarch claims very favorable results for persevering treatment with *ice*, applied by a bladder on the knee, continued for a long time.

The persistent application of *heat*, accompanied by the careful application of cataplasms, compresses wet with warm water, or warm baths, is indicated when the course of the disease is exceedingly torpid, when bad-looking, fistulous ulcers, deficient vascularity of the granulation, or bad, thin secretion, seem to indicate a moderate irritation of some kind. However, when high temperatures are applied, they should not act too long, or their effect will be lost, and there will be complete relaxation of the parts, instead of the fluxion it was proposed to excite.

JAMES E. GARRETSON, M. D., D. D. S.

Acute synovitis, if disassociated with cachexia, may commonly be quickly resolved into a subacute condition. If purely local, the attention required will be one vigorously antiphlogistic. A cure, almost magical in the rapidity with which it results, is sometimes secured by cauterizing the surface with the solid *nitrate of silver*. When cachexia

is present, local sedation must be combined with constitutional specific medication.

A common treatment for an acutely-inflamed joint, might be laid down as follows:

Put the feet and legs in water as hot as can be borne; administer a full saline cathartic or a diuretic; apply a lead-water and laudanum lotion to the inflamed part; bleed with the lancet, or locally, with leeches; depress the circulatory force by the administration of arterial sedatives, and restrict to a low diet; use counter-irritants; any or all of these means being employed, according to the indications of the case, an exception to the use of the pediluvium existing in inflammation of the inferior joints.

The inflammation, having its acuteness thus broken, is often brought to a happy termination by painting the joint with the tincture of iodine, or with diluted Monsel's solution of the persulphate of iron; and, afterwards, if necessary, enveloping the parts in a lead-and-laudanum lotion.

Where structural change is feared as the result of effusions, mercurials may be administered and pushed to the least perceptible evidence of their impression.

When, in defiance of treatment, suppuration occurs in a joint, the pus formed is to be got clear of as speedily as possible. To effect this, it is, perhaps, not possible to adopt a better plan than the subcutaneous valvular puncture, to be made by using a delicate tenotome. At this stage, we may also resort to direct stimulation, with prospects of good results; stimulating embrocations, hot and cold douches, strapping, painting, passive motion, or even injections into the joint itself, may save the articulation when other means fail.

Professor GUBLER employed ten parts of iodoform to twenty of sulphuric ether and twenty of alcohol. When dissolved, the liniment should be applied to the diseased joint, by means of a pencil. The parts should then be covered with a piece of oiled silk. For the same affection, Dr. COTTLE dissolves iodoform in chloroform.

IX. LESIONS OF THE ORGANS OF CIRCULATION.

Aneurism—Lymphangitis—Nævus—Phlebitis—Varicose Veins.

ANEURISM.

J. M. DA COSTA, M. D., PHILADELPHIA.

This author states there are but two remedies in which he has any faith in the radical treatment of internal aneurism. The first is *iodide of potassium*. It should be used boldly. The following recipe was given continuously for ten months, with the most marked beneficial results, in a case of chronic aneurism:

287. ℞. Potassi iodidi, gr. xv.
Syrupi tolutani,
Aquæ, āā f.℥j. M.
For one dose, thrice daily.

This remedy does no good excepting early in the disease.

The second remedy referred to is *ergot*. It is not yet known definitely how much good it really does. Some very excellent results have been obtained by LANGENBECK. It may be given internally or by hypodermic injections.

In a disease so dangerous, so almost necessarily fatal, the importance of a knowledge of any remedy which seems to exert an influence is apparent. As both the iodide of potassium and ergot can be tried without injury to the patient, it is the duty of every practitioner, in cases of internal aneurism (in which, of course, surgical treatment is out of the question,) to try one or the other of these drugs.

The following formula may be used for the hypodermic injection of ergotin:

288. ℞. Ergotinæ, gr. ij.
Spiritûs vini rectificatæ
Glycerinæ, āā f.℥ss. M.
Five minims (equal to gr. ½ of ergotin) for a dose. This is the formula of EULENBERG.

Prof. LANGENBECK employs the aqueous extract of ergot or *Bonjean's ergotin*. It is usually administered hypodermically in the dose of gr. ¼. In a case reported by LANGENBECK, thirty grains of this preparation were injected in forty days with great benefit. The subclavian aneurism diminished in size, and the other symptoms improved.

Prof. BARTHOLOW gives the following formula:

289. ℞. Extracti ergotæ fluidæ (U. S. P.,) f.℥ij
Carefully filter and inject in ten-minim doses.

A. T. H. WALTERS, M. D., OF LIVERPOOL.

In the *Lancet*, April, 1872, this writer recommends absolute rest, so far as possible, and a restricted diet. The patient should not so much as sit up in bed for weeks. His medicinal treatment is *iodide of potassium*, twenty grains, three times a day, continued for months. The application of an ice-bag over the tumor has also produced good results at his hands.

Dr. WARD (*Medical Times and Gazette*, September 26th, 1874,) also found decided value in the application of the *ice-bag*. He also administered digitalis with iron, and succeeded in causing the disappearance of the evidences of the tumor in a case of thoracic aneurism.

M. DENUCE, OF LYONS.

A case of aneurism of the anterior tibial artery is reported by this surgeon (*Lyon Medicale*, 1876,) in which he effected a cure by injecting into the sac the following solution:

290. ℞. Ferri perchloridi, gr. viij.
Aquæ, f.℥j. M.
Seven drops for an injection.

The artery was compressed above and below the tumor for ten minutes, at the expiration of which time all pulsation had ceased. A compressing bandage was applied and kept on for some days, when the cure was found to be perfect. Immediately upon the introduction of the fluid, cramps came on in all the toes, and there was marked redness of the anterior part of the flesh. Both of these, however, vanished very quickly. D. advises this mode of treatment only in cases in which the artery can be compressed with certainty upon both

sides of the tumor, and he also advises compression by means of a bandage for some time, to insure the formation of a clot. The strength of the solution used in this case was but 15 per cent. GIVALDIS thinks it better to use one having a strength of 25 to 30 per cent., as a tougher and more solid clot is formed, and the danger of embolism is less.

DR. T. W. GRIMSHAW, OF DUBLIN.

In several cases of abdominal and thoracic aneurism, this physician has found beneficial and even successful results from *aconite*, united with as complete rest as possible. He uses:

291. ℞. Tinturæ aconiti radicis, ♏ v. M.
This dose every three hours.

When the symptoms of poisoning from the drug become unpleasantly marked, the dose should be reduced one half. The diet should be low, consisting of bread and tea, beef-tea and soup, but no stimulants. From two to three months must be employed to effect the best results. (*The Medical Press and Circular*, May 17th, 1876.)

A combination of iodide of potassium with carbonate of ammonia is found to increase largely the efficiency of the former, in internal aneurism as well as syphilis, etc., a fact first noticed by Sir JAMES PAGET. The following has been found by Dr. JOSEPH P. MCSWEENY, "of the greatest service in internal aneurism." (*British Medical Journal*, January, 1874):

292. ℞. Potassii iodidi, gr. v.
Ammonii carbonatis, gr. iij. M.
For one dose.

JOLIFFE TUFNELL, F. R. C. S. I.*

The object of Mr. Tufnell's treatment is to obtain consolidation of the contents of the sac. It is especially adapted to the earlier stages of internal aneurisms. He records ten cases of cure, and others have been reported. The objects in view are to diminish the heart's action and increase the proportion of solid constituents in the blood. Continued rest in the horizontal position is the factor of most importance. It should be maintained for eight or ten weeks without the patient

* *The Successful Treatment of Internal Aneurism*, London, 1876.

once sitting erect. The bed, therefore, should be comfortably arranged in every respect.

The diet is to consist of three regular meals, as follows: breakfast, 2 oz. of white bread and butter, with 3 fl. oz. of cocoa or milk; dinner, 3 oz. of broiled or boiled meat, with 3 oz. of potatoes, and 4 fl. oz. of water or light claret; supper, 9 oz. of bread and butter, with 2 fl. oz. of milk or tea, making an aggregate of ten ounces of solid food and eight ounces of fluid in twenty-four hours. If thirst is very great, a pebble or very small pieces of ice may be held in the mouth. For wakefulness, lactucarium, gr. v, may be given when necessary. If there is bronchial irritation and cough, he prescribes:

293. ℞.	Lactucarii,	gr. xx.	
	Extract. hyoscyami,	gr. x.	M.
Make six pills. Two at bedtime.			

If the patient has difficulty in swallowing the pill, he prescribes:

290. ℞.	Tinct. lactucarii,	f.℥j.	
	Aquæ lauro-cerasi,	♈ ij.	
	Tinct. hyoscyami,	f.℥j.	
	Aquæ,	f.℥j.	M.
Take at night.			

The bowels are to be carefully regulated, and aperients given only when necessary, the most suitable being pulv. jalapæ co., pil. col. co., and pil. rhei co.

Should the urine become so charged with salts as to scald on micturition, he gives bicarbonate of potash, gr. x, in aquæ f.℥j, from time to time.

Pain is frequently met with, and must be relieved by the free use of narcotics. A very useful prescription is:

295. ℞.	Liquoris sedativi (Battley,)	♏ xxv.	
	Liquoris ammoniæ acetatis,	f.℥j.	
	Liquoris antimonii et potassæ tart.,	♏ xx.	
	Aquæ frigidæ,	f.℥j.	M.
For one dose.			

The hypodermic injection of morphia is very useful. A few leeches on the thorax, near the aneurismal sac, often relieve the pain; as does sometimes change of position, as lying prone, or the application of a heated smoothing-iron.

DR. S. FLEET SPEIR, OF BROOKLYN.

A threatening case of aneurism of the abdominal aorta is reported by this writer as completely cured by keeping the patient in bed for two months, with the following internal remedies. (*Medical and Surgical Reporter*, March, 1874):

296. ℞. Liquor. ferri subsulphatis, ♏ iv.
This amount three times a day, alternated with

297. ℞. Acidi gallici, ʒ ss.

PROF. T. M'CALL ANDERSON, M. D., OF GLASGOW.

In 1875 this physician described, before the British Medical Association, several cases of aneurism of the arch of the aorta, successfully treated by *galvano-puncture*. The rules he lays down for its use, are as follows:

1. It is safer to attempt a cure by means of chemical, than by means of inflammatory, action; and, therefore, in every case, the continuous-current battery should be employed.

2. He always employs one of Stohrer's large-celled batteries; but the kind of instrument is not of great consequence, provided the cells are large.

3. The needles should not be very thick, and should be insulated to within half an inch of the point, for we must aim at acting upon the blood in the aneurism only.

4. Should the needles be connected with the positive or negative, or both poles? The balance of opinion seems to be in favor of connecting them with both, although Dr. ANDERSON prefers connecting the needles with the positive pole only.

5. He uses a weak current, as it gives little or no pain, and does not excite serious inflammation.

Dr. ANDERSON considers the operation comparatively safe, but thinks there is a question whether the consolidation of the portion of the tumor which approaches the surface, may not, in some cases, favor the extension of the disease in other directions.

MR. C. F. MAUNDER, SURGEON TO THE LONDON HOSPITAL.*

The mode of treatment which this author advocates for the cure of popliteal aneurism and all other suitable cases, is moderate compression.

**Surgery of the Arteries*, London, 1875.

alternating with relaxation, say for a fortnight, with a view, partly, if thought desirable, of promoting a more free collateral circulation in the limb; and, at the expiration of this time, *continuous* compression, either digital or instrumental (completely obstructing the artery,) maintained under chloroform or opium, if necessary, for a period varying from six to twelve hours, or even longer, and assisted by a tourniquet on the distal side of the sac, if the first attempt did not succeed. Should a few sittings fail to effect good progress in the cure, the ligature would be the next resort.

He sums up the general principles of treating aneurisms as follows:

1. No aneurism is to be regarded as necessarily incurable.
2. Some cases in internal aneurism are apparently cured by absolute and prolonged rest, restricted diet, and other medical treatment.
3. When possible, compression, either proximal or distal, is to be employed in addition.
4. In all aneurisms in which treatment by ligature is known to be a fatal operation, the above rules are to be first applied.
5. The treatment of progressive aneurism at the root of the neck, by the distal operation, is justifiable after medical treatment has failed.
6. In rare instances only may an aneurism be treated by ligature before compression has been tried and has failed.
7. Digital is to be preferred to instrumental compression.
8. Anæsthetics and morphia are valuable aids to compression.
9. Chloroform will, probably, prove to be a more effectual agent than morphia in all cases but the more hazardous.
10. The value of morphia should be more thoroughly tested.

DR. G. W. BALFOUR.

The treatment recommended by this writer, for internal aneurism, comprises *iodide of potassium* and *rest*. The latter means the recumbent position and a restricted diet. The former he gives in doses of ℈j to ʒss, three times a day, with infusion of chiretta. To get the specific effect of the drug, the blood must be rapidly saturated, and these large doses continued for many months. Iodism is more apt to occur from small than from large doses. If the patient is very intolerant, this can be overcome by intermitting the remedy. By strict adherence to this plan, Dr. BALFOUR has invariably succeeded in

relieving the symptoms and retarding the progress of the case; and, in some instances, has effected a cure. (*The Lancet*, Feb., 1876.) In regard to diet, fish was given as the least nutritious form of animal food, and the patients urged to restrain their appetites. In regard to fluids, water, tea and milk alone were allowed, and in as small quantities as possible.

RÉSUMÉ OF REMEDIES.

Aconite is a valuable agent to lower the blood pressure. Its physiological effects must be produced and maintained.

Alumen in doses ℈ss-j, thrice daily, is said to have aided the coagulation of the contents of the sac.

Barii Choridum. This substance, in doses of gr. $\frac{1}{8}$–$\frac{3}{8}$, three times a day, has been successfully tried in aneurism by Dr. F. FLINT, (*Practitioner*. July, 1879.) He says of it: "In my opinion preference should be given to the chloride of barium in fusiform aneurisms, which have hitherto not been very amenable to treatment, and also in the aneurisms of advanced age."

Chloral Hydrate is an important adjuvant for lowering the blood pressure in internal aneurism.

Digitalis. Dr. J. M. FOTHERGILL asserts that this drug "spurs on the natural efforts to rupture the sac." Yet some have prescribed it for the palpitation, etc. Mr. T. HOLMES recommends that it be combined with iodide of potassium in internal aneurism when the heart's action is excited (♏ v–viij at a dose.) At the session of the British Medical Association in 1877, Dr. CLIFFORD ALLBUTT (Leeds) laid before the meeting the remarkable results to be derived from digitalis in the treatment of aneurism, which he considered *the* drug for this disease. It should be given in increasing doses until it brought down the pulse to 45, which should be kept at this rate so long as the patient tolerated it, even for months. Dr. ALLBUTT had watched two cases for three and nine years respectively, and these were at least in abeyance. Experience had proved to him that such modification of the heart's force was the reverse of injurious. Dr. MACKAY (Birmingham) bore testimony to the value of iodide of potassium in the treatment of aneurism, and also to the beneficial effects of digitalis.

Ergota. Highly commended by Dr. DA COSTA and others. *Ergotine* has also been employed. Professor VON LANGENBECK uses:

298. ℞. Ergotinæ, gr. j-iv.
Aquæ des.,
Glycerinæ, āā q. s.

For one hypodermic injection, to be thrown into the neighborhood of the tumor every day or every few days.

Ferri Perchloridi Tinctura. The injection of this, or some other ferruginous styptic, has proved useful in small aneurisms. Professor BILLOTH recommends it in those of spontaneous and traumatic origin. The danger is that fragments

of the clot will float into the circulation and produce embolism. To prevent it, compression above and below the sac is requisite.

Gallicum Acidum has been highly praised. Dr. S. F. SPEIR, of Brooklyn, combines it with subsulphate of iron. (See page 249.)

Plumbi Acetas has been given in doses of gr. ij–xx daily, with occasional success, even in undoubted aortic aneurism. It must be given for many weeks successively, the doses gradually increased, but lessened or suspended if symptoms of plumbism occur.

Potassii Iodidum. The use of this drug, together with complete rest and a restricted diet, was first suggested by Dr. GRAVES, of Dublin. Dr. BALFOUR gives it in large and repeated doses. (See above.) Lesser doses, combined with carbonate of ammonia, are said to produce equal effect. Dr. FOTHERGILL says this plan of treatment for internal aneurism, with small doses of hydrate of chloral added, is "theoretically perfect."

Tannicum Acidum, in doses of gr. v–xv has been used

Veratrum Viride. This remedy, used to depress the circulation, is an important adjuvant to the surgical measures in aneurism. In large internal aneurisms it is a powerful adjunct to other remedies, in slowing the circulation. This effect should be accomplished, however, without producing vomiting. The patient should, therefore, remain absolutely in the recumbent position, and a little opium should be combined with the veratrum. (BARTHOLOW.)

EXTERNAL MEASURES.

Cold. The application of ice to the surface of the tumor is said to have acted beneficially in some cases. But it is a painful remedy and there is risk of sloughing of the skin.

Emplastra. When the pain attending the increase of the tumor is considerable, the application of *belladonna* or *hemlock plasters* often gives relief. Or anodyne embrocations may be used, as

299. ℞. Tinct. aconit. radicis,
Olei olivæ, āā ℥ij. M.

Apply on cloth to the part.

Galvano-puncture is appropriate in a small minority of cases where the vessel implicated is of moderate calibre.

Poultices. Astringent poultices have been thought to be of service. The application of a *tan poultice* to the epigastric region is reported to have greatly relieved one case. (Dr. W. ARDING, in the *Medical Times and Gazette*, November 4th, 1876.)

Pressure is a successful method of treating aneurism. When it can be carried out, compression of the artery above with the finger is by far the best plan. (HOLMES.) The pressure must be equable and sufficient to stop the whole circulation (8 lbs. will stop that of the femoral artery.) Instrumental compression by weight, with a point not larger than the finger end, may be instituted in place of digital compression. Numerous instruments are devised for the purpose.

The Esmarch Bandage. Several cases cured by the application of this bandage have been reported. In all, the aneurism was of the popliteal artery. In all but one case the treatment was commenced by completely arresting the circulation in the limb for *one hour* by means of Esmarch's bandage, pressure being kept up after this time by means of a tourniquet. In all the successful cases the bandage was so applied that the sac was filled with blood at the time the circulation in the limb was arrested. From the consideration of these cases, it seems that the conditions to be observed as most favorable to success are the following—namely, that the circulation in the limb should be for a time completely arrested, that the aneurismal sac should be full of blood, and that the circulation in the aneurism should be stopped for a sufficient time to allow the blood to coagulate. For how long a time it may be prudent to exclude the blood from the entire limb by the Esmarch bandage, and when the more local effect of the tourniquet should be substituted for the Esmarch bandage, is a matter for further investigation. It is, however, probable, from the experience of long operations for necrosis performed under the Esmarch bandage, that surgeons have not yet reached the limits of safety as regards the time during which the bandage may remain on the limb. The advantages of this method are that it is rapid in its action, easy of application, requires neither complicated apparatus nor a large staff of assistants, and may therefore be employed in private practice as easily as in hospitals. The period of its application being comparatively short, the administration of ether would be justifiable if the pain, which is generally complained of after a short time, prove unduly severe. Compression for an hour seems to be quite adequate to insure complete stasis in the aneurism, and it is well known that the lower limb may be kept bloodless for much longer periods than that without any bad results following.

LYMPHANGITIS.

PROFESSOR THEODOR BILLROTH.

Inflammation of the lymphatic vessels is a not infrequent result of simple and poisoned wounds of the extremities. The object in the treatment is to obtain resolution, and prevent suppuration, if possible. The patient should keep the affected limb in absolute quiet; if an arm, it should be placed in a splint; if a leg, he should remain in bed.

When there is gastric derangement present, as is often the case, an *emetic*, or emeto-cathartic, is indicated. Not unfrequently the disease promptly subsides after the purgation and sweating induced by such a remedy. Among local remedies, rubbing the whole limb with *mercurial ointment*, is particularly efficacious. The limb should be covered

warmly, so as to maintain an elevated temperature. For this purpose, wrapping it in cotton wadding is very suitable.

Should the inflammation increase in spite of this treatment, and diffuse redness and swelling occur, suppuration will take place at some spot. As soon as fluctuation is perceived, an opening should be made, and the pus evacuated. Should healing be retarded, it may be hastened by daily *warm baths;* these are particularly useful where there is a great tendency for the disease to return to a spot once attacked.

The disease rarely extends beyond the axillary or inguinal glands of the affected limb; but occasionally it is followed by pyemia or pleurisy, usually in a subacute form.

DR. THOMAS HAWKES TANNER.

In the treatment of lymphangitis, the patient should be placed on a bed, in the centre of a well-ventilated room, and unusual attention given to his hygienic surroundings During the day, he should drink freely of a solution of *chlorate of potash*, in lemonade or barley-water, ℥ j to O j. Cathartics are generally called for, especially if the bowels are constipated and the patient robust. Sulphate of soda or magnesia may be used.

In almost all cases, after the immediate onset of the disease has passed, there is need of concentrated nourishment, stimulants and tonics. Eggs, cream and extract of beef, the brandy-and-egg mixture, wine or spirits, are demanded. The following is a useful combination:

300. ℞. Ammoniæ carbonatis, ℈ iss.
Tincturæ lavandulæ comp., f. ℥ j.
Infusi cinchonæ flavæ, ad f. ℥ viij. M.
One-sixth part every six hours.

Acidulated drinks are sometimes refreshing and valuable where there is alkaline reaction in the saliva and a foul breath.

301. ℞. Acidi hydrochlorici diluti, f. ʒ ij-iij.
Mellis, f. ℥ j.
Decocti hordei, O ij. M.
For a daily drink.

Later in the disease, quinine and iron will be needed to hasten convalescence.

Locally, warm fomentations and large linseed-meal poultices, applied warm and frequently changed, give the greatest relief.

As the disease is often the result of the absorption of some poisonous matter by the lymphatics, this will require appropriate local treatment.

Internally, in such cases, the *sulphites* and sulphurous acids (also the sulpho-carbolates) have been recommended. These substances are yet under trial, but may properly be exhibited experimentally.

If red lines have begun to stretch up the limb, Prof. AGNEW recommends that it should be encircled by a blister above the disease, which, if timely applied, will stay the further progress of this inflammation.

NÆVUS.

In the cure of nævus, the means at our disposal may be divided into two classes: first, those by which a scar is avoided; and, secondly, those which necessarily leave a cicatrix of greater or less magnitude. The first class aim at the destruction of the texture of the nævus, or the coagulation of the blood which it contains, by agents which can be introduced through minute punctures of the skin. The means used are the injection of coagulating fluids, the introduction of setons, the subcutaneous ligature, electrolysis and the galvanic cautery. Electrolysis, the other method referred to, may be performed in two ways, viz., with and without insulation of the electrodes. With perseverance, the latter is an efficient means; but local injections are much more convenient.

Dr. BIGELOW, of Boston, uses:

302. R. Argenti nitratis,
Aquæ destillatæ, āā gtt. iij–vj. M.
For injection.

Dr. DE SMET, of Brussels, has found that small nævi may often be dispersed by tattooing with Croton oil.

Dr. HENRY G. PIFFARD, of New York, expresses the opinion that in the capillary nævus, or "wine-mark," probably the best method of treatment is to paint, lightly, the surface, or part of it, if large, with nitric acid. When the cauterized epidermis exfoliates, the nævus should be found to have slightly diminished. The application can then be repeated. It should be done by means of a small probe, around the end of which a little cotton has been wrapped.

In this form of nævi, however, the treatment advocated by Mr. BALMANO SQUIRE, of London, is preferable. He scarifies the affected skin with a series of short incisions, about one-sixteenth of an inch apart, to the depth of nearly dividing the cutis vera. Interposing a piece of white blotting-paper, he exercises gentle pressure with the finger, for about ten minutes. This checks the bleeding. In a fortnight the surface is healed. If necessary, the operation may then be repeated.

DR. DAWSON, OF NEW YORK CITY.

This surgeon prefers, to all other means, in the treatment of nævi, the *galvanic needle*. In its use, however, certain important precautions are required. For superficial nævi, all that is required is a degree of heat that will radiate into the deeper tissues from the surface. If too intense heat be used, it will be removed with the needle, knife or platinum strip, whichever may be employed, and the appearance of the nævus will, subsequently, be the same as it was before the application; whereas, if the platinum be only heated to a dark-red color, destruction of tissue will not be produced, and the vessels will be made to shrink by the radiated heat. For all superficial nævi, of moderate size, a single thorough application is all that is required to effect a cure. In treating a subcutaneous nævus, a white heat becomes necessary, in order that the knife or needle shall retain sufficient heat to be of service when it has reached the deeper tissues. Nævi having large surfaces, may be destroyed at different times; and considerable portions will also be destroyed by the moderate inflammatory action which follows each operation. A point especially insisted upon by Dr. DAWSON is, that the galvanic cautery does not, in any true sense, produce a coagulation or thrombosis in the vessels, like that produced by astringent injections, but rather a clot that becomes rapidly organized, and a shrinking in the calibre of the vessels, which remains permanent, and that this can be effected without destruction of tissue. If too hot a needle or knife from the galvano-cautery be introduced into tissues, there will be as much hemorrhage as after the use of a cold, sharp knife.

PROF. JOSEPH LISTER, OF LONDON.

303. ℞. Acidi carbolici puris, ♏ ij–v.
To be injected, as evenly as possible, in minim doses, over the whole tumor.

This injection can be repeated at intervals of four or five days, if necessary. If the tumor is very vascular, it may be prudent to transfix its base with hare-lip pins, and strangle it with a ligature tightly fastened beneath them.

PROF. ZEISSL, OF GERMANY.

This surgeon recommends the use of his "antimonial plaster."

304. ℞. Ant. et potassæ tartratis, ʒj.
Emplastri adhæsivi, ʒv. M.
Apply on the nævus and a little beyond its edges.

This brings about pustulation in from five to seven days. If this is profuse, the wound can be dressed with rags wet with oil; if but little, the paste may remain on until it falls off. Usually, the spot will be healed in two weeks, leaving a slight scar. The process is said not to be very painful.

RÉSUMÉ OF REMEDIES.

Caustics. These are especially applicable when the tumor is of comparatively small size, and is upon the edge of the lip, the tip of the nose, the brow, or the cheek. The application of strong *nitric acid*, on a needle or a piece of wood, held against the spot for a considerable time, has the effect of producing an eschar, which separates with a certain amount of inflammation; that inflammation coagulates the blood, and gradually obliterates the tumor. *Chloride of zinc* is preferred by some surgeons; the acid nitrate of mercury by others; or nitrate of silver, chromic acid, etc. With any of them a depressed cicatrix will remain.

Coagulants. Of these, perchloride of iron is the best, but its use is never safe. An instance is on record where an injection of a single drop brought about the death of a child in two minutes. Carbolic acid is less dangerous. Ferri persulphatis, ♏ij, has also been used. Care should be taken that the fluid injected be distributed over the growth in minute portions; and the surgeon should be careful to do less at one sitting than is necessary for obliteration, trusting rather to repetitions of the operation, which ought not to be made at too short an interval. A preliminary disruption of the texture of the nævus, with a tenotomy knife, is advantageous, by permitting greater diffusion of the coagulating fluid; and, therefore, a greater effect with a smaller quantity than otherwise would be the case. With these precautions, that the circulation be controlled, and the amount injected kept within due proportions, this method of treatment seems to be the best we have for nævi of moderate size, situated on the face, if they be mainly subcutaneous. It is safe, very successful, and leaves no scar.

Collodion. A nævus, of small size, situated over a bone, will often disappear, if painted with collodion every second or third day. Mr. COSFELD dissolves corrosive sublimate in the collodion.

305. ℞. Hydrarg. chlor. corrosiv., gr. v.
Collodii, f. ʒj. M.
For painting the surface.

Electrolysis. Dr. I. J. KNOTT, medical superintendent of galvanism in St. Mary's Hospital, London, reports, in the *Lancet*, March, 1875, forty cases of nævus, all successfully treated by this means. He gives the following directions as to his manner of proceeding: "I use Stohrer's and Meyer and Meltzer's continuous batteries, and judge, according to the size of the nævus, how many cells to use: six or eight are about the average if the battery is in good working order. If the nævus is small, I use one or two needles attached to the negative pole, and one to the positive, and pass them into the tumor; but, if large, I put on several needles in the negative cord, and use charcoal point with the positive. After the needles have been in the tumor a short time, decomposition begins to take place; this is shown by bubbles of gas passing by the side of the needles. A clot is then formed, the tumor turns of a bluish white, and in this clot fibrous degeneration takes place, and ultimate cure is the result. The advantages of the galvanism are its certainty of action, its safety, the faintness of the cicatrix, and the cessation of pain directly the operation is over. I have used every other method, and I certainly think this, by far, the best."

Hydrargyri Nitras. For removing *moles*, Mr. B. GODFREY recommends acid nitrate of mercury. His plan is to take a fine-pointed glass tube, and, having dipped it in the caustic solution, to dot all round the hirsute mass, upon the healthy skin, where they both join; then to dot points through the mass, like the white squares upon a chess-board, leaving the blank ones to be treated in a similar manner in a fortnight hence. By such a method, he prevents too great an inflammatory action setting in, and makes a less scar in the future.

Oleum Tiglii. Dr. E. DE SMET, of Brussels, rapidly cures small nævi by pricking them with the points of needles, dipped in Croton oil. He fixes a dozen needles in a cork, with their points slightly projecting, and, by a sudden movement, plunges them into the tumor. After the slight swelling and vesiculation thus caused, disappear, he repeats the procedure. (*Presse Medicale Belge*, Dec., 1873.) No cicatrix is left, and the pain is slight.

Setons. A common mode of destroying nævi, of limited extent, is by producing obliterative inflammation in the tumor, by the introduction of a seton. The needle is threaded with cotton thread. The thread may be dipped in some acid substance, and the tumor may be transfixed in several places, and the string left in the interior. The circulation is not very active, and the hemorrhage, in such an operation, is rarely worthy of notice. The thread left in the tumor produces a certain amount of inflammation, and that inflammation, coagulation round the thread; and, if two or three threads are passed through, there will be two or three lines of coagulation, and so it spreads

till the whole tumor is consolidated. If the first instance does not succeed, another series of threads may be passed through, and, in the end, the tumor will be consolidated.

Sodii Ethylas. This caustic application has been successfully tried, in nævus, by Dr. B. W. RICHARDSON, of London. He brushes the surface lightly, and repeats as needed. The pain is slight, and, in superficial nævi, the result is good.

Solar Cautery. The rays of the sun, concentrated by a lens, have been employed at times. (See *Medical and Surgical Reporter*, vol. XV.) Dr. HENRY G. PIFFARD, of New York, recently stated that he had found the solar cautery applicable to the treatment of lupus and chancroids, and believed that it might prove serviceable in nævus. While applying this cautery, the eyes should be protected from the brilliancy of the light by wearing colored glasses, else the operator will not be able to determine the exact outline of the cauterization. With a little practice, a line no more than a sixteenth of an inch in breadth, can be obtained with considerable ease.

Vaccination may be employed where the child has not yet undergone it. Pure bovine lymph should be preferred, the matter being introduced in a great many places very close together. The plan is, however, "very uncertain." (HOLMES.)

Zincum. The chloride, the iodide and the nitrate of zinc have been employed to destroy nævi. The nitrate, according to Mr. MARSHALL, of London, penetrates deeper than the chloride, and possesses the further advantage of producing less pain.

PHLEBITIS, THROMBOSIS AND EMBOLISM.

Sir THOMAS WATSON recommends local depletion when the inflamed vein is accessible; regulation of the bowels; strong animal broths and wine to support the strength; opiates to tranquillize nervous irritability and restlessness. Our object is, in the first place, to subdue and resolve the inflammation; or, at any rate, to prevent its passing beyond the adhesive stage. To this end, the vein being obvious and superficial, we apply leeches, cold lotions or fomentations. During the progress of the malady, especially when suppurative phlebitis is prevalent, it would be unsafe to cut into a large vein, lest, by that slight violence, we establish a fresh local phlebitis. Indeed, after the suppurative form has once been set up, general blood-letting does no good; but, on the contrary, impairs the power of the system at large to struggle against the disease.

In phlebitis of the superficial veins, a *blister*, applied over the

course of the inflamed vein, reduces the inflammation, hastens the absorption or liquefaction of the coagulated blood, and assists the restoration of the circulation through the obstructed vessels. (RINGER.)

The hardness which is often left after the removal of the inflammation, may usually be removed by assiduously poulticing the part with cataplasms of *common salt and nitrate of potash.* (BASHAM.) The œdema which is apt to remain, must be met with the application of blisters and the pressure of an elastic roller.

When coagula have floated into the vessels, producing venous or arterial *embolism or thrombosis,* the treatment is mainly expectant. Perfect rest is essential. Stimulants, tonics and nutritious food are called for to sustain strength; opiates to subdue restlessness. The limb must be kept warm and slightly raised. Surgical interference, of any kind, is dangerous.

As to whether any substance can be administered by the mouth or injected into the vessels to dissolve the clot, observations are not conclusive. The *liquor potassæ* and *liquor ammoniæ*, in dilute solution, have been suggested for injection. Dr. BENJAMIN W. RICHARDSON, in a communication to the Medical Society of London, in 1876, related four cases in which he had administered ammonia in large doses, for the purpose of causing resolution of fibrine in the right side of the heart, or in the great vessels. In three of the cases the treatment was successful, but the fourth had a fatal termination, the patient dying from cerebral effusion.

Dr. HILTON FAGGE, of London, for the results of simple embolism, recommends, though hypothetically, the administration of ten-minim doses of liquor ammoniæ, in iced water, every hour, with three- to five-grain doses of iodide of potassium every alternate hour.

Dr. BARTHOLOW considers that not only when thrombosis is actually existent, but even when it is threatened, as in the puerperal state, after free hemorrhage, when the circulation is languid from weak heart, a state of hyperinosis being present, it is perfectly safe and legitimate to practice the intravenous injection of aqua ammoniæ, f. 3 j–ij, diluted with an equal measure of water.

THOMAS HAWKES TANNER, M. D.

As thrombi are mostly met with in conditions of great exhaustion, as after extensive hemorrhage, in endocarditis, purpura and the puer-

peral state, the indications, generally, are to support the vital powers and allay irritability. For this purpose, the usual forms of concentrated nourishment and stimulants must be liberally, but judiciously, given. Pure air, perfect rest, and opiates as needed, are essential features of the treatment. The following combination is valuable where it is feared the deposit of fibrine has taken place in one of the large vessels of the heart:

306.	℞.	Ammoniæ carbonatis,		℈ iss.	
		Extracti opii liquidi,		♏ xxx.	
		Spiritus ætheris,		f. ʒ iij.	
		Decoctum chinchonæ flavæ,	ad	f. ʒ viij.	M.

One-sixth part every three or four hours.

The *sulphite of magnesia*, in doses varying from ℈j–ij, dissolved in f. ʒ j–ij of water, has been recommended in such cases. Its efficacy is not yet determined. The *iodide of potassium* is believed by some to produce absorption of the thrombus, and may be administered gr. x–xv three or four times a day, for a long period, in chronic cases. *Mercurials*, which also have a reputation for the same power, are generally contra-indicated by the exhaustion present.

VARICOSE VEINS.

PROF. A. D. VALLETTE, OF LYONS.

This author has the following:

307.	℞.	Iodinii,		gr. xv.	
		Acidi tannici,		ʒ ss.	
		Aquæ destillatæ,		f. ʒ xvj.	M.

For local injection.

During the operation, a bandage is applied tightly round the limb above the vein to be operated on, and this is not to be removed for three hours after, for fear of embolism. The "iodo-tannic" solution is injected to an amount varying from ten to twenty-five drops. The effect is to cause immediate coagulation of the blood at the part acted on. At first there is no pain, but after a few hours a severe burn-

ing sensation sets in, and the vein begins to inflame slightly in each direction. This never reaches any serious degree, but it is sufficient to cause obliteration for some distance above and below the spot injected. The author states that there is no fear of embolism. He has operated in more than two hundred cases without any accident, and has found the results much more permanent and complete than after any other operation.

DR. VOGT, OF BERLIN.

308. ℞. Ergotæ extracti aquosæ, ℥ ij.
Alcoholis,
Glycerinæ, āā ℥ j. M.
A syringeful injected in the vicinity of the varix.

DR. LINON, VERVIERS, FRANCE.

This writer claims much success in the treatment of varicose veins by swathing the leg in a flannel compress wet with a solution of chloride of iron in water, forty-five grains to the ounce, and then applying a roller flannel bandage over it firmly for twenty-four hours. This is to be repeated daily for a week or two weeks.

DR. EDWARD R. MAYER, OF PENNA.

This writer states that he has employed, "with brilliant results," lotions of witch-hazel to varicocele and other varicose enlargements. His formula is:

309. ℞. Concentrated tincture of hamamelis, ℥ j.
Water, ♁ j. M.

He believes that it exerts a specific effect on the venous system. (*Hints on Specific Medication*, 1876.)

The *hypodermic injection of chloral* into the vein has been recommended by Prof. PORTA, of Italy. He throws in gr. xv at an injection, and repeats it several times at five or six days' interval if required. The operation is rather painful, but is rarely followed by phlebitis. Coagula are formed and the veins thus become blocked up and atrophied.

Mr. COLLES, of Dublin, recommended central compression of the dilated veins, by means of a soft truss (as a ball of feathers.) At first sight this would seem more likely to increase the varicose condition;

but in fact it has the reverse effect, probably through causing gradual dilation of the collateral venous circulation.

In all cases of varicose veins, the causes, which are often mechanical, as prolonged standing or sitting in one position, the presence of a tumor, tight garters, obstinate constipation, etc., must be inquired into.

DR. J. F. MINER, OF BUFFALO, NEW YORK.

This surgeon has reported very favorably in regard to the treatment of varicose veins by injection of the *persulphate of iron*. He uses the officinal solution in the proportion of one drop to about ten drops of water. Injections may be made at different points. Immediate coagulation of the blood is produced, the vessel contracts, soon becomes a mere cord, while the blood circulates through the smaller and deeper vessels.

As to the objections raised against the operation—as, 1st, that it is liable to produce extensive ulcers; 2d, that there is danger of phlebitis; 3d, that there is danger of air in the vein—Dr. MINER states that if the vessel is dissected down upon, with careful touches of the scalpel, until its blue walls are plainly exposed, the point of the syringe carefully introduced into the vessel and nowhere else, and if the solution is reduced and not used stronger than above stated, with every precaution as to the perfect cleanliness and proper filling of the instrument, not one of these objections can be sustained.

Practiced properly, it is invariably successful and satisfactory.

DR. ENGLISH, OF VIENNA.

This writer, reported in the *Mittheilungen* of the Vienna Medical College (November 8th, 1878,) the following method: The vein and a fold of the skin are caught up between the thumb and finger, and a needle of a Pravaz syringe is inserted in such a way that its point shall be immediately behind the vein. The contents of the syringe, from one to one and a half cubic centimetres of a fifty per cent. sample of alcohol, are then discharged in the immediate neighborhood of the vein. A small knot forms at the point of injection, and very often there is a momentary appearance of contraction in the veins. On the third day, there will be a considerable infiltration at the point of injection, which differs according to the irritability of different persons. In individuals who were very irritable, there was considerable redness

produced, and in four or five cases suppuration ensued. The suppuration was only in the *neighborhood* of the vein, however; the vessel itself remained sound and healthy. The abscesses were as large as a bean, but gave rise to no trouble whatever. In none of Dr. E.'s cases was there any rise of temperature, though he examined carefully with reference to this point.

X. LESIONS OF THE ORGANS OF DIGESTION.

THE MOUTH AND THROAT.—*Caries of the Teeth—Odontalgia—Aphthæ and Stomatitis—Pharyngitis (Sore Throat)—Tonsillitis (Quinsy, Cynanche)—Tonsillar Hypertrophy.*

THE STOMACH AND BOWELS.—*Hernia—Intestinal Obstruction (Occlusion, Intussusception)—Hemorrhoids—Fissures of the Anus—Fistula of the Anus—Prolapse of the Anus—Pruritus of the Anus.*

CARIES OF THE TEETH.

PROF. JAMES E. GARRETSON, M. D., D. D. S., PHILADELPHIA.

Caries is a disease most markedly of congenital association and predisposition. It may be confidently prognosed that the offspring of parents afflicted in this way will be in like manner afflicted; and that, on the other hand, the children of parents possessing good teeth will be in like manner favored. The general dyscrasiæ exert an injurious influence on the teeth, imparting to them a low grade of vitality, and rendering them incapable of resisting the chemical action of the agents with which they are necessarily brought in contact.

Of these agents the following are the most common and injurious:

1. *Mucous Deposits.*—The mucoid fluid is often found to be glairy and tenacious, alkaline to the test, and more or less offensive in odor—a condition universally associated, when a habit, with dental caries and general dyscrasia. The teeth in such a mouth are covered with a film, so persistent that the ordinary use of the brush fails to disperse it, while the common dentifrices exert but a temporary good.

Teeth so diseased find relief alone in *acids*, not only locally employed but also internally administered. As a systematic medicine let the following be prescribed:

310. ℞. Acidi hydrochlorici diluti, gtt. x.
Syrupi, f. ℥ ss.
Aquæ, f. ℥ j. M.

For one dose, one to three times a day.

Conjoined with this, a grain of quinine may be given once or twice daily. As a mouth wash, the following combination will be found applicable:

311. ℞. Tincturæ capsici compositæ. f.℥ ij.
Aquæ coloniæ,
Spiritus vini, āā f.℥ ij.
Tincturæ quillai, f.℥ iss.
Tincturæ gentianæ compositæ, f.℥ j.
Acidi acetici diluti, f.℥ ss.
Acidi carbolici fluidi, ♏ ij. M.
To be used by saturating a tooth-brush which has first been dipped in water.

Where much offensiveness of odor is associated with this inspissated mucus, it may be necessary to use a gargle of the permanganate of potassa, or of the aqua chlorinata.

312. ℞. Potassii permanganatis, gr. xv.
Aquæ, f.℥ viij. M.
For a mouth-wash; use as required.

Another most excellent preparation for such disinfection, is the *phenate of soda*. It is used diluted with water, ordinarily one part of the phenate to ten parts of water.

2. *Acid Secretions.*—When excessive acidity of the oral fluids is suspected, they should be tested with litmus paper in the morning on rising. If such test reddens the paper for a series of mornings, an antacid indication may be considered to be fairly established, and a prescription something like the following may be ordered:

313. ℞. Potassii chloratis, ℥ ss.
Aquæ, f.℥ iij.
Tincturæ capsici comp., f.℥ ij.
Aquæ coloniæ, f.℥ j.
Tincturæ quillai, f.℥ iss.
Olei gaultheriæ, q. s. M.
To be used with a brush.

Or a powder may be preferred, as

314. ℞. Cretæ præcipitatæ,
Iridis Florentinæ pulveris, āā ℥ ss.
Ossis sepiæ pulveris, ℥ ij.
Olei limonis, q. s. M.

Or,

315. ℞.	Cinchonæ rubræ pulveris,	ʒ ij.	
	Capsici pulveris,	gr. x.	
	Potassii chloratis pulveris,	ʒ j.	
	Pulveris aromatici,	ʒ ij.	
	Magnesiæ carbonatis,	ʒ ss.	
	Iridis Florentinæ pulveris,	ʒ j.	
	Saponis Castiliensis pulveris,	ʒ j.	M.

The different kinds of acids detected in the mouth furnish indications for constitutional treatment. If it is uric acid, there will generally be found deficient respiratory and circulatory action; if lactic acid, existing leukemia may be predicated.

3. *Parasites.*—Animal and vegetable fungi in the mouth are added causes of the deterioration of the teeth. To destroy them, few agents will be found more reliable than what is called the *dental carbolic acid soap.* Powders used as dentifrices, remove them mechanically. Acid washes may also be prescribed. The *sulphite of soda,* ʒ ij, to aquæ, f. ℥ j, has been highly praised. Sometimes an alternation of acid and alkaline washes will produce a quite wonderful change for the better, when either alone has been of little service.

4. *Electro-chemical Relations.*—These have reference to the influence which artificial dentures may exert, and should always be considered.

5. *Medicines and Articles of Food.*—Acids are not best given through glass tubes, but well diluted with water, and thrown into the back part of the mouth and swallowed in a single act. Sugar is not directly deleterious to the teeth, but only indirectly, as it disturbs digestion. Raisins rapidly corrode the teeth and are most tenacious in their lodgment.

6. *Accidental Influences.*—Cracking nuts with the teeth, the improper use of the file, the employment of a variety of metals as fillings, low gold alloys, and neglect of cleanliness, are frequent causes of caries. As an ordinary dentifrice, to be used once a day, the following may be prescribed:

316. ℞.	Cretæ preparatæ,	ʒ ij.	
	Ossis sepiæ pulveris,	ʒ ss.	
	Iridis Florentinæ pulveris,	ʒ j.	
	Cinchonæ rubræ pulveris,	ʒ j.	
	Saponis albi pulveris,	ʒ ij.	M.

For a dentifrice.

ODONTALGIA.

JAMES E. GARRETSON, M. D., D. D. S.

The causes of toothache may be classed under the following heads:

1. Sensitive dentine.
2. Exposure of the pulp to sources of irritation.
3. A diseased state of the periodonteum.
4. Confinement of pus and gas in the pulp cavity.
5. Granules of osteo-dentine in the pulp.
6. Sympathy.
7. Recession and absorption of the gum and alveolus.

The treatment of these various conditions is briefly as follows:

1. *Sensitive Dentine.*—The most permanent means of cure is the introduction of filling into the cavity. As a temporary treatment, the excavation and polishing of the surface may be resorted to. Cauterization with the solid nitrate of silver, chloride of zinc, or with equal parts of the tincture of aconite and a saturated solution of iodine, is preferred by some.—A method very satisfactory where the parts are very sensitive consists in introducing into the unexcavated cavity a filling of oxychloride of zinc.

2. *Exposure of the Pulp.* The treatment of an exposed pulp is palliative and radical.

Palliative Treatment.—Foreign bodies are to be removed; the oral fluids, if irritating, changed by appropriate washes; soothing applications are to be applied, as warm tincture of hamamelis, oil of cloves, dilute creasote, equal parts of chloroform, laudanum, and tincture of aconite, persulphate of iron. In the odontalgia of first dentition, it is well that parents be provided with some general prescription. A very good one is as follows, to be applied by saturating a small piece of cotton and laying it loosely in the cavity:

317. ℞.	Creasoti,		gtt. vj.	
	Tincturæ iodinii,			
	Liquoris plumbi subacetatis,	āā	f.℥j.	
	Chloroformi,			
	Tincturæ ovii,	āā	f.℥ss.	M.

In severe inflammation of the pulp, it may be necessary to resort to some more general measures. Blisters upon the nape of the neck will

frequently result in speedy relief; hot pediluvia; saline cathartic medicines; diaphoretics, or diuretics. An inflammation of the dental pulp, if not too far advanced, will almost invariably be broken up by the administration of bromide of potassium, gr. v–xl, the application of a mustard poultice to the back of the neck, and a hot foot-bath continued from twenty minutes to half an hour.

The *atropiæ sulphas* is an invaluable agent in soothing the pain of an irritable pulp. If severe inflammation has not supervened, few instances will not be entirely relieved by the following:

318. ℞. Atropiæ sulphatis, gr. vj.
Aquæ destillatæ, ℥j. M.
Saturate a small piece of cotton, and lay in the cavity, which should be previously well cleaned.

In the odontalgia of gout, *vinum colchici radicis*, gtt. xx, three or four times a day, may be depended on. In rheumatism no combination seems better than the following. Its administration in the plethoric should be preceded by a free purging with a saline cathartic:

319. ℞. Potassii iodidi, ʒss.
Tincturæ colchici radicis, ℥ss.
Extracti belladonnæ, gr. vj.
Tincturæ guaiaci compos.,
Aquæ cinnamomi, āā ℥vj. M.
A tablespoonful three times a day in a little water to an adult; if it act too freely on the bowels, add opium, q. s.

Radical Treatment.—This is accomplished by destroying the pulp by means of escharotics. No better formula for a destructive nerve-paste can be given than this:

320. ℞. Acidi arseniosi,
Morphiæ acetatis, āā gr. x.
Creasoti, q. s.
To make a thick paste.

In very irritable conditions, it might be advisable to substitute sulphate of atropia for the sulphate of morphia. The effect of this application must be carefully watched. As a rule, the arsenic is not to be left in the adult tooth longer than fifteen hours, when it is be carefully removed.

3. *Disease of the Periodonteum.*—This is generally periodontitis. In all ordinary cases, when seen in its early stages, the following routine treatment will seldom fail: Place the feet of the patient in very hot

water until the patient grows faint or breaks out in a perspiration. Apply just in front of the ear, a fly blister of the size of a silver dime piece, and upon the nape of the neck a second, the size of a silver dollar. Internally, give:

321. R. Potassii bromidi, gr. xxv.
Tinct. veratri viridis, gtt. v. M.
For one dose every four hours.

Lance the gums freely with a very sharp lancet, and afterwards keep cotton applied, saturated with the fluid extract of *Hamamelis Virginica*. In the plethoric, in addition to the above course, half an ounce of the sulphate of magnesia may be given in a tumbler half full of water.

As adjuncts, leeches may be occasionally employed with advantage. They may be applied directly to the gum, or to the outside of the jaw.

A very simple plan of treating incipient periodontitis, and which will frequently be followed by immediate relief, consists in making a minute blister upon the gum overlying the affected root, through an application of the saturated tincture of iodine.

An acute periodontitis resisting the means here suggested, the attack increasing in severity, the surgeon finds himself compelled to abandon antiphlogistics, the indication being to advance the condition to the suppurative point as quickly as possible. To this end, heating and exciting medicaments are to be employed; warm water is to be held in the mouth; or a weak dilution of the tincture of capsicum, about twenty-five drops to a tumbler of warm water, may be used in the same way. The domestic application of a roasted split fig to the gum increases the heat of the parts, and invites suppuration to the surface to which it is used.

4. *Confinement of Pus and Gas in the Pulp Cavity.*—The common treatment in all these cases is to remove the tooth, or else to drill an opening into the pulp cavity.

5. *Granules of Osteo-dentine in the Pulp.*—Drilling into the affected tooth and destruction of the pulp, or else extraction, are the only remedies.

6. *Sympathy.*—Sympathetic toothache may be associated with decay in other teeth, or with lesions in other organs, most commonly the ear, the uterus, or the stomach, in the order named. The erring organ once ascertained must receive the treatment.

7. *Recession and Absorption of the Gum and Alveolus.*—Toothache from this cause is not acute or severe, but rather dull. Little can be done, extraction proving usually necessary. The fluids of the mouth should be tested, and acids or antacids administered as required. One can use lime-water in one direction, and very dilute citric acid in the other. Recession sometimes comes from the employment of non-soluble dentifrices, recognizable from the presence of their particles at the edges of the gums. Turgid gums may be led to contract by free bleeding, secured through occasional scarifications.

J. FOSTER FLAGG, M. D., D. D. S., OF PHILADELPHIA.

As an escharotic paste for destroying the nerve, this practitioner prefers the following formula:

322. ℞. Acidi arseniosi, gr. v.
Morphiæ acetatis, gr. x.
Olei caryophylli, gtt. x. M.
For an escharotic paste.

For this substitution of oil of cloves for creasote, he argues that the latter was added for the purpose of alleviating the pain which is a frequent concomitant of the arsenical irritation. But this is still better attained by the oil of cloves, as this is but very slightly if at all escharotic, and possesses a very marked power of obtunding the sense of pain. (*The Dental Cosmos*, July, 1877.)

A favorite odontalgic with Philadelphia dental surgeons is:

323. ℞. Tincturæ iodinii,
Liquoris plumbi subacetatis diluti,
Tincturæ opii,
Chloroformi, āā f. ʒ ij. M.
Apply upon cotton.

Gelsemium rarely fails to give decided and lasting relief in cases of neuralgic pains in the face and jaws, associated with carious teeth, gtt. x–xx of the fluid extract three or four times a day.

324. ℞. Aluminis, ʒ ij.
Etheris nitrici, f. ʒ vij. M.
Said to be an effective application in toothache.

325. ℞. Aluminis, ℥j.
Vini, Oj.
Tinct. cinchonæ, f.℥ss.
Tinct. myrrhæ, f.℥ij.
Mellis rosæ, f.℥ij. M.

As a gargle and mouth wash when the gums are spongy and ill-conditioned, and manifest a tendency to recede from the teeth.

Mr. JAMES MERSON, L. D. S., in the *British Journal of Dental Science*, 1878, states that the following formula will prevent the pain of tooth extraction. Hundreds of patients told him they did not feel the pain:

326. ℞. Chloroform pur., ℥iij.
Tr. aconiti (Fleming's,) ℥iij.
Tr. capsici, ℥j.
Tr. pyrethri, ℥ss.
Ol. caryoph., ℥ss.
Gum camph., ℥ss. M.

The tooth and surrounding gums are to be previously dried, and then four or five drops of this applied with cotton wool. Then without delay use the forceps, but the instrument *must be warmed*. This is most important. For toothache, a pellet of cotton wool soaked in the above, and introduced into the cavity, will give speedy relief.

The following odontalgics are recommended by various writers:

327. ℞. Tincturæ aconiti, f.℥ss.
Tincturæ benzoini, f.℥ij. M.

Immerse a piece of cotton in this liquid, and introduce it into the cavity of the aching tooth.

328. ℞. Chloroformi,
Creasoti,
Vini opii, āā f.℥ss.
Tincturæ benzoini, f.℥ijss. M.

Immerse a piece of cotton in this liquid, and introduce it into the cavity of the aching tooth.

329. ℞. Chloroformi, f.℥iss.
Vini opii, f.℥ss.
Tincturæ benzoini, f.℥ijss. M.

To be introduced by means of cotton into the cavity of the aching tooth.

330. ℞. Tincturæ arnicæ, f.℥v.
Vini opii, ♏xv.
Aquæ destillatæ, f.℥x. M.

This mixture is to be held in the mouth for several minutes, to relieve the pains occasioned by general toothache.

APHTHÆ AND STOMATITIS.

JAMES E. GARRETSON, M. D., D. D. S.

Occurring in connection with acute diseases, aphthæ usually disappear with the condition which excited them; but appearing in connection with dyscrasic diseases, (see chap. XV.,) they often give the practitioner the greatest anxiety and trouble.

Acute aphthæ, as manifested in *cancrum oris*, *gangræna oris*, and follicular inflammation, demand the most attentive local treatment. Alterative and soothing applications are what are required, as:

331. ℞. Cupri sulphatis, gr. v–xxx.
Aquæ, f.℥j. M.
For a lotion; an excellent application.

Or:

332. ℞. Tincturæ ferri chloridi, f.℥j.
Quiniæ sulphatis, gr. xxv. M.
To apply to the parts.

Or:

333. ℞. Pulv. cinchonæ rubræ,
Cretæ precipitatæ,
Acidi tannici, āā q. s. M.
For a powder to be dusted over the parts.

Hydrochloric acid, applied by means of a feather or small brush, causes less pain than might be supposed, and is thought by many to be the very best local application that can be employed.

Combined with these applications are to be employed the more soothing means. Starch, gum and slippery-elm water are very serviceable. Tincture of *hamamelis*, much diluted, is a good preparation. Another is the *phenate of soda*.

The bowels should be kept laxative by oil, the saline cathartics or aloes. The neutral mixture of lemonade is useful in inflammatory conditions. For the diarrhœa frequently seen, a combination like the following is suitable.

334. ℞. Hydrargyri cum creta, gr. ij.
Pulveris opii,
Pulveris ipecacuanhæ, āā gr. j.
Magnesiæ carbonatis, gr. xij. M.
Make twelve powders. One of these, for an infant, every two hours.

Professor PENROSE uses the following very palatable and efficient combination in this and in the ordinary diarrhœa of summer, both in the infant and adult:

335. ℞. Bismuthi subnitratis,
Myristicæ pulveris, āā ʒij.
Cretæ perparatæ, ʒij
Syrupi zingiberis, f.ʒ ijss. M.

From twenty-five drops to a teaspoonful, according to age, repeated every two hours.

In treating *gangrena oris* we must endeavor to circumscribe the action by sloughing out the affected part by means of caustic; and this accomplished, we must stimulate the general system, correct functional disturbance, and use for the relief of the local sore such soothing means as seem indicated.

DR. ROBERTS BARTHOLOW.

336. ℞. Potassæ chloratis, ʒj.
Acidi carbolici, ʒss.
Aquæ destillatæ, ʒiv. M.

For a lotion. Apply directly to the affected part.

"There is no more effective remedy for *ulcerative stomatitis*, the stomatitis of nursing women, and *apthæ*."

J. COPELAND, M. D., LONDON.

This experienced practitioner recommends the following combinations:

337. ℞. Acidi muriatici diluti, f.ʒ ss.
Tincturæ capsici, f.ʒ iss.
Mellis, f.ʒ v.
Infusi rosæ, f.ʒ v. M.

To be used in stomatitis when the ulcers are slow in healing.

338. ℞. Magnesii carbonatis, ʒj.
Ferri carbonatis, ʒ iss.
Potassii iodidi, ʒ ij.
Tincturæ gentianæ compositæ,
Syrupi sarsaparillæ compositi, āā f.ʒ ijss. M.

Two teaspoonfuls a day in ulcerous stomatitis.

The French surgeons offer a variety of applications, which are the more useful, as it is unfortunately true that these ulcerations are frequently obstinate, and recur again and again, in spite of the most careful attention.

DR. MAURICE JEANNEL, OF PARIS.

339. ℞. Tincturæ myrrhæ,
Mellis rosæ, āā · f.ʒ ij.
Liquoris calcis, f.ʒ iss. M.
Touch several times a day the superficial ulcerations of the mouth.

340. ℞. Potassii chloratis, ʒ ijss.
Acidi muriatici diluti, f.ʒ ss.
Mellis rosæ, f.ʒ viij.
Aquæ, f.ʒ iss. M.
A useful gargle in ulceration and gangrenous stomatitis.

341. ℞. Tincturæ myrrhæ, f.ʒ ij.
Acidi muriatici diluti gtt. x.
Infusi rosæ,
Decocti cinchonæ, āā f.ʒ iij. M.
Use as an astringent and alterative gargle in inflammation of the mouth and throat.

342. ℞. Liquoris calcii chloridi, f.ʒ iij.
Mellis rosæ, f.ʒ vij.
Aquæ destillatæ, f.ʒ v. M.
Useful in ulcerous stomatitis and in fetid breath.

DR. N. GALLOIS, OF PARIS.

343. ℞. Sodii boratis, ʒ ss.
Glycerinæ, f.ʒ ss.
Mellis despumatæ, f.ʒ iij. M.
Touch lightly with the solution, by means of a camel's-hair pencil, several times a day, the aphthous ulcerations of the mouth. In case of the insufficiency of this remedy, resort to the nitrate of silver.

344. ℞. Aluminii et potassii sulphatis, ℈j.
Tincturæ opii camphoratæ, f.ʒ iss.
Aquæ destillatæ, f.ʒ iv. M.
A useful gargle in aphthous stomatitis.

Or:

345. ℞. Tincture myrrhæ, f.ʒ v.
Tincturæ opii camphoratæ, f.ʒ iss.
Mellis rosæ, f.ʒ j.
Decocti hordei, f.ʒ v. M.
A useful gargle and wash in aphthous inflammation of the mouth and throat.

RÉSUMÉ OF REMEDIES.

Acidum Carbolicum, gtt x.–xv, is used as an antiseptic mouth wash and gargle, especially when the fetor is marked. In ulcerous stomatitis its concentrated solution in glycerine may be employed, applied by means of a camel's-hair brush, as a mild caustic.

Acidum Hydrochloricum Dilutum. A useful application in aphthous ulcerations and in mild cases of cancrum oris, is:

346. ℞. Acidi hydrochlorici diluti, f.℥j.
Mellis, f.℥j. M.
For local use.

Acidum Nitricum. In ulcerative stomatitis and aphthæ this acid may be administered in small medicinal doses with conspicuous benefit. It is also used as a caustic in severe cases of cancrum oris.

Alumen. Aphthous ulcers, showing but little disposition to heal, or a tendency to spread, may be touched with dried alum a few times a day with the best effect. In simple ulcerative stomatitis it should be applied with the finger a number of times a day.

Argenti Nitras applied in substance to the ulcers is spoken of by Dr. SYMONDS as an efficient and most decisive remedy in the severe forms of aphthous ulcerations of the mouth; but since chlorate of potash, in four or six or more grain doses, has very properly attained the reputation of a specific in aphthæ, the nitrate of silver and muriatic acid are only resorted to when this fails. NIEMEYER says the application of nitrate of silver is very painful, but it acts surely and quickly.

Calx. DEWEES found great advantage from lime-water and milk, in doses of one-quarter or one-half a teaspoonful four or five times a day in infantile aphthæ when there were green, but not liquid stools. When the diarrhœa is profuse, prepared chalk is preferable, or the chalk mixture may be used.

Calx Chlorinata is recommended in scorbutic and other ulcerations of the mouth, as a gargle, made of chloride of lime, grains 120 to 240, water one pint, and honey one ounce. It corrects the fetor, and stimulates the parts to healthy action. It should be filtered before the honey is added. The *liquor sodæ chlorinatæ* is more convenient, and perhaps as useful.

Cascarilla is recommended even in the gangrenous thrush of children, by UNDERWOOD, as an aromatic bitter and tonic, for the relief of the atonic dyspepsia and debility from which the disorder often arises, and for the diarrhœa which often attends it. By its aromatic properties, it even renders Peruvian bark more agreeable to the stomach, and increases its powers.

Chlorinii Liquor, or chlorine gas, dissolved in half its volume of water, when largely diluted, is a tonic, stimulant and disinfectant; one part of the gas to eight parts of water is the average strength for a gargle or lotion, and has been used successfully in aphthæ, stomatitis and cancrum oris.

Cupri Sulphas is an excellent old-fashioned application in the severer forms of cancrum oris, aphthous ulceration and gangrenous affections of the mouth.

SYMONDS used five grains finely powdered and thoroughly incorporated in half an ounce of honey. It has also often been applied in substance.

Cydoniæ Decoctio, or infusion of quince seeds, (120 grains of the seed to one pint of boiling water,) is a demulcent often used in aphthous affection and excoriations of the mouth. It is of but little value in itself, but is a good vehicle for other remedies.

Geranium Maculatum. The virtues of this plant depend upon the quantity of tannic and gallic acid contained in it. In aphthous affections, ulcerations of the mouth and throat, and relaxed states of the mucuous membranes, it is often used as a wash or gargle, and a decoction in milk is often relied upon against the attendant bowel complaints. But it is better and more convenient to use small doses of tannin, both locally and internally.

Hydrargyrum Chloridum Corrosivum, gr. i–ij to aquæ Oj, is recommended by NIEMEYER.

Magnesia is used as an antacid and absorbent in aphthæ and aphthous ulcerations, especially when acid diarrhœa is present.

Mel, or honey, was employed by HIPPOCRATES to clean foul ulcers, and by DIOSCORIDES in fistulous ulcers and wounds, which were slow to heal. The Arabian writers dwell particularly on its advantages in affections of the mouth and fauces, and especially of the gums, particularly when mixed with vinegar. STILLÉ advises it in all cases in which a mild stimulant is required to change the character of ulcerated surfaces. In all ages it has been applied to the gums and buccal mucous membrane to remove aphthæ and slight pseudo-membranous deposits; but it is now usual to associate it with the borate of soda, or chlorate of potash, both of which materially increase its efficacy. The honey of roses and oxymel are said to be superior to honey alone. But in thrush or muguet, NIEMEYER says the domestic remedies, such as sprinkling the mouth with sugar, or painting it with borax and mel rosæ, are to be avoided, as they render the mouth sticky, and furnish new materials for decomposition, and do not at all prevent the re-development of thrush. VON MAACK advises it strongly in the aphthæ of chlorotic females, as, according to him, chlorosis depends upon an imperfect conversion of the products of digestion into sugar in the liver. (PETERS.)

Potassii Chloras is used in aphthous inflammation and ulceration of the tongue arising from anything which irritates the alimentary canal; also in diphtheria, cancrum oris, and gangrenous stomatitis. HUNT gives from 5 to 20 grains for children, and 30 to 60 grains for adults, daily, and uses a lotion of ʒj–ij in aq., Oj, as a wash; but these doses are too small in severe cases. It is the principal remedy in follicular stomatitis and aphthæ. Dr. HANNER was successful in seventy cases, with doses of 30 to 60 grains in twenty-four hours, in expediting the cure. It is particularly useful in ulcerative stomatitis, which commences by small ulcers on the inside of the cheeks or lips, or at the junction of the mucous membrane of the gums with the cheeks, or with the gums themselves, separating them from the teeth. These ulcers may become large and covered with a pultaceous pseudo-membranous deposit, assuming an almost gangrenous appearance and exhaling a fetid smell. Drs. HUNT and HAWKINS first found it a

prompt and certain remedy in doses of 20 to 60 grains a day. WEST regarded it as almost specific; MEIGS seldom found it necessary to resort to any other means, and authorities innumerable may be cited to the same effect. WOOD says it almost always operates like a charm in the follicular and aphthous stomatitis of children. It acts both locally and constitutionally, for it can be detected in ten minutes after its administration in the urine, in which fluid it continues to be present for fifteen to forty-eight hours after each dose. RINGER says it is of signal service in various affections of the mouth, but particularly so in ulceration of the edges of the gums, which is generally limited to one side of the mouth, but then affects both the upper and lower jaws, and also that part of the tongue and cheeks coming in contact with the ulcerated gums. The influence of the chlorate is almost magical. In one or two days it cleans the dirty-looking ulceration, and heals it in a few days more. The chlorate of soda is more soluble than the chlorate of potash, and is at least equally serviceable.

Quinia proves highly serviceable in aphthous ulcerations when the patient is much debilitated; but the muriate tincture of iron may surpass it. Pulv. rhei and magnes. carb., āā gr. x to xv; spts. ammon. aromat., ♏xx, and aq. cinnamomi, ℥ss, is useful in the aphthæ of children when given in small doses.

Sodii Bicarbonas proves effectual when given with a few grains of rhubarb or chalk.

Sodii Biboras, or borax, is a popular and efficient remedy. WATSON gave mel boracis (℥j to ℥j of honey) with syrup of poppies equal parts, in the aphthous ulceration which attends the advanced stages of phthisis, and in cracked tongue. STILLÉ says that one of the most ordinary uses of borax is to remove the aphthæ which affects the mouth, fauces and anus of nursing children, apparently dependent upon an undue generation of acid in the primæ viæ. It should be given internally, in doses of 3 to 10 grains a day, and associated with magnesia in some aromatic water; while a weak solution, or the glycerole of borax, is applied frequently to the mouth. RINGER advises the glycerine of borax, 1 to 8, in aphthæ and the curdy exudation of thrush, or muguet.

PHARYNGITIS (SORE THROAT.)

J. SOLIS COHEN, M. D., OF PHILADELPHIA.

The treatment of the more usual varieties of sore throat is given as follows by this writer. (*Medical and Surgical Reporter*, October, 1874.)

For *simple inflammatory sore throat*, he would confine the patient to the bed or lounge, lightly covered so as to equalize the heat of the

body. At the outset, an emetic is often of great service, especially if a meal has been recently taken. Mustard in water usually serves the purpose better than anything else. A gentle laxative should follow, to remove the accumulations in the intestinal canal. The free use of demulcent drinks should be allowed, and bits of ice in the mouth, when cold is agreeable, will soothe the pain in the throat. Sponging the entire surface of the body with acidulated or alcoholized tepid water will allay the heat of the skin, if excessive. In more severe inflammatory cases, *tincture of aconite*, gtt. i–iij, every one, two or three hours, will be advantageous.

Locally, sprays of dilute solutions of alum, carbolic acid, tannin, or sulphate of copper, relieve the uneasiness in a few hours. Compresses wrung out in cold or tepid water may be bound round the neck. When the uvula is elongated or œdematous it should be punctured; excision is never necessary.

Phlegmonous sore throat, tonsillitis or quinsy, requires to be treated on antiphlogistic principles. An emetic of mustard, a saline laxative, one or two-drop doses of aconite, and the inhalation of steam from water impregnated with hops, chamomile flowers, the watery extract of opium, belladonna or conium, or with compound tincture of benzoin, will be the earlier measures. Warm and moist external applications generally give great relief. Gargles are not often of value, because their proper use entails too great pain. Medicated sprays, however, are very efficient local applications. Rather strong aqueous solutions are preferable, as:

347. ℞. Aluminis,
Acidi tannici
Zinci sulphatis,
Cupri sulphatis, āā gr. xx–xxx.
Aquæ, f℥j. M.
For atomization.

The sulphate of copper seems the most generally efficient. The topical application of the nitrate of silver can very rarely be done in a satisfactory manner.

Powders of alum, tannin, krameria, etc., in various dilutions, may be blown upon the parts with a tube.

If the tonsils are very much inflamed, great relief will follow scarification or incision, the bleeding being encouraged by mouthfuls of warm water.

The general strength must be conserved by concentrated food, easy of deglutition, by nutritive enemata, or by tonics and stimulants.

In *ulcerous sore throat*, the topical treatment is very important. When the disease is superficial, bromine, muriatic or nitric acid, the acid nitrate of mercury, or caustic potassa, may be employed to destroy the diseased tissue promptly, in the hope of exposing a healthy surface beneath. When this fails, or it is too dangerous to attempt, we can only palliate the symptoms by weak solutions of acids and astringents, and must depend on constitutional measures to arrest the progress. Sprays of chlorate of potassa, etc., are often agreeable, but have no direct influence on the disease. The most nutritious food, quinine and brandy, are imperatively demanded to sustain the system.

In *common membranous sore throat*, the treatment is usually the same as in the simple inflammatory form. In some individuals, however, there is a tendency to constant recurrence for weeks and months. With these, dilute acid, applied every day or two, seems to afford more satisfactory results locally than the ordinary astringent and caustic salts. The internal use of iron and cinchona as tonics, and sometimes of opium, not as a narcotic, but rather in small doses as a special stimulant, is also indicated.

PROFESSOR OPPOLZER, OF VIENNA.

Malignant sore throat.—This dangerous form of cynanche is usually acute in its course, lasting from ten to twenty days. Death may result from gangrene, from acute œdema of the glottis, pyæmia, the sudden bursting of the abscess into the respiratory passages, or its descent into the mediastinum. Prof. OPPOLZER treated the disease as follows:

As in all other inflammations, he was fond of beginning with cold moist applications to the part, substituting warm fomentations for these when the patient complained. He believed that his treatment not only favored resolution, but relieved the pain, and he was careful to apply the water as cold as possible, and change the cloths as soon as they became warm. If the symptoms did not abate, or, on the contrary, increased, he next applied leeches locally, and this, as a rule, with the happiest results; the disease either disappearing or taking a mild form. Severe pain was relieved by morphia.

When, in spite of these various means, the swelling continued to increase, and alarming dyspnœa supervened, he lost no time in scari-

fying the swelling freely, and should this not be successful, in opening the trachea. "When the signs of pus are present," says OPPOLZER, "the surgeon should not hesitate for a moment to reach it with his bistoury. The internal treatment of the patient must be pursued on general principles, and wine, soups, quinine, and the mineral acids administered with discretion. Should the condition become chronic, mercury, iodine and blistering will be found to give the most satisfactory results."

LENNOX BROWNE, F. R. C. S., OF LONDON.

In his recent work, *The Throat and Its Diseases*, (London, 1878,) this writer gives the following formulæ, which he has found specially efficacious:

348. ℞. Acidi tannici, ʒ vj.
Acidi gallici, ʒ ij.
Aquæ, ad f. ℥ j. M.

Very useful as a styptic gargle, after excisions of the tonsils or ablution of the uvula.

349. ℞. Liquoris potassii permanganatis, (B. Ph.,) f. ʒ j.
Aquæ destillatæ, ad f. ℥ x. M.

An antiseptic gargle; at a temperature of 90° to 95°, it may be used as a nasal douche.

350. ℞. Sodii bicarbonatis, gr. xxv.
Spiritûs ammon. aromat., ♏ xx.
Infusum gentianæ comp., ad f. ℥ j. M.

Very valuable where there are dyspepsia and digestive disturbances in chronic pharyngeal inflammations; and a good akaline vegetable tonic after recovery from quinsy, etc.

351. ℞. Sodii salicylatis, gr. xv–xxv.
Syrupi, f. ℥ j.
Aquæ, f. ℥ j. M.

For one dose, every hour, until the pain is relieved in tonsillitis, with pyrexia and rheumatic symptoms.

For RÉSUMÉ OF REMEDIES, see under next section, TONSILLITIS.

TONSILLITIS (QUINSY, CYNANCHE.)

JAMES E. GARRETSON, M. D., D. D. S.

In simple tonsillitis, the following may be employed:

352. ℞. Plumbi acetatis, ℥j.
Tincturæ opii, f.℥j.
Aquæ, f.℥xij. M.
For a gargle.

In the frequent cases in which the congestion is associated with passivity, resolution will be often quickly effected by the following:

353. ℞. Sodii biboratis, ℥iij.
Potassii chloratis, ℥j.
Tincturæ capsici, f.℥ij.
Tincturæ myrrhæ, f.℥j.
Aquæ, f.℥viij. M.
For a gargle.

Another practice which the author has found happily applicable to these latter conditions, consists in first brushing the parts with a solution of nitrate of silver, gr. iv to aquæ f. ℥j, and afterward using the following:

354. ℞. Tincturæ iodinii compositæ, gtt. xl.
Acidi carbolici fluidi, gtt. vj.
Glycerinæ, f.℥j.
Aquæ, f.℥vij. M.
For a gargle.

Small particles of ice may be taken into the mouth and allowed to dissolve. A pleasant application is a gargle of flaxseed tea in which chlorate of potash has been dissolved. It should be remembered that sympathetic inflammation of the tonsils is not infrequent.

Free scarification has occasionally been resorted to with the best results. In the vigorous, leeches applied between the angle of the jaw and the sterno-cleido-mastoideus muscle, and blisters on the nape of the neck, will be found of the greatest service. Prolonged hot foot-baths constitute a most satisfactory and reliable means of relief. If general fever is present, it is a good practice to place the patient over a basin of steaming water, and with the form enveloped up to the very mouth in blankets, to secure diaphoresis by plentiful exhibition of the spiritus mindereri—a tablespoonful every ten minutes

until the desired result is produced. A very useful combination, when the fever runs high and the system is irritable, is:

355.	℞.	Liquoris potassii citratis,	f.℥ iij.	
		Spiritûs ætheris nitrosi,	℥ ss.	
		Tincturæ veratri viridis,	gtt. xxv.	M.

One to four teaspoonfuls, according to age and condition.

When, in defiance of treatment, a tonsillitis determines toward suppuration, the best that can be done is to hasten the process as rapidly as possible, providing always that the attendant swelling is not formidably extensive. In these latter cases nothing better can be done than to make early incisions. Where the swelling is not extensive or threatening, a gargle of *flaxseed tea* will be found both soothing and encouraging to the formation of pus. When the pus has formed, it should be given exit with the knife as soon as recognized.

DR. THOMAS HAWKES TANNER.

The treatment of acute tonsillitis is best commenced with a saline cathartic, such as the citrate of magnesia. Externally the patient should apply hot fomentations, or linseed-meal poultices to the throat. Steam of hot water to the fauces, blistering the outside of the throat, or the application of stimulating embrocations—as the compound camphor liniment—will be useful in some obstinate cases. Guaiacum in large doses has been recommended as a specific in quinsy, but Dr. TANNER has never found it of much service.

A useful gargle is of opium and belladonna.

356.	℞.	Tincturæ opii,	f.℥ ij.	
		Tincturæ belladonnæ,	f.℥ iij.	
		Aquam camphoræ,	ad f.℥ viij.	M.

For gargle, to be used frequently.

Cloths wet with this may also be applied to the outside of the throat.

A very useful remedy in the very early stages of the disease is a cold wet compress fastened around the throat and covered with oiled silk or flannel.

If an abscess form, it is to be opened cautiously with a sharp-pointed bistoury, the cutting edge being directed toward the mesial line of the body. It is well to have some styptic at hand, in the event of free hemorhage, which occasionally occurs.

DR. JAMES H. PEABODY, OF NEBRASKA.

This writer states that in tonsillitis of all grades, he has unvarying success from the use of *oleum terebinthinæ*. (*Medical and Surgical Reporter*, September 9th, 1876.) He commences the treatment of all cases, whether of diphtheritic or ordinary tonsillitis, by seeing that the alimentary canal is properly cleaned by the administration of Epsom or Rochelle salts, where they can be taken; if not, the granulated citrate of magnesia is palatable, and seldom objected to. He also immediately puts the patient on the following prescription:

357. R. Ol. terebinthinæ, ℥ ij.
Pulveris potassii chlo., ʒ ij.
Pulveris sach. alb., ʒ ss.
Pulveris acaciæ, ʒ ss.
Aquæ, ℥ v. M.

Shake up well, and take a large teaspoonful every hour or two, until the inflammatory symptoms begin to subside, then less often.

Always directing it to be rinsed well around in the mouth before swallowing, so that every possible portion of the inflamed mucous membrane, from the lips to the stomach, may be touched with the turpentine and chlorate of potash.

The inhalation of steam from hops and vinegar is allowed, if the patient desire, as it is soothing to the inflamed mucous membrane.

If this alone does not relieve the patient in twenty-four hours, or less in severe cases, he adds to the emulsion forty-eight grains of sulphate of quinine, so that we get the local effect, as well as the constitutional, of this potent drug. This is taken in the same way every two or three hours, alternating it with twenty drops of tinctura ferri mur., if desired. He has yet to see the first fatal case where this treatment was carried out from the outset of the disease.

DR. HANFIELD JONES, OF LONDON.

In a review of the therapeutics of this disease, (*Lancet*, January, 1871,) this writer states that *belladonna* is more appropriate where the tonsils are acutely inflamed than in those cases where there is general inflammation of the fauces, without special affection of the tonsils. In the latter case he thinks that either *iodide of potassium* or the solution of *sesqui-chloride of iron*, according to the quality and stage of the inflammation, is preferable; and though he often combines with the belladonna a little quinine or sulphate of magnesia, or an emetic,

according to the indications of the case, and sometimes the use of steam, or a blister applied externally to the neck, he feels justified in maintaining that the success which he has obtained in the treatment of these cases is not to be attributed so much to these auxiliary measures as to the belladonna. He always gives directions that the administration of the remedy shall be slackened as soon as the throat symptoms are materially relieved, or on the production of any toxic effect.

Dr. JONES does not pretend to decide whether the remedy operates by producing constriction of the arteries, or by a direct sedative effect on the elements of the affected tissue; but he proposes that, if further observation should confirm its value in acute tonsillitis, the patient should be saved the regularly recurring pain of swallowing doses of medicine, by reducing the preparation of the drug to the smallest possible bulk, or by injecting it subcutaneously in the form of atropine.

MR. LESLIE THAIN, ENGLAND.

In inflammation of the fauces, (tonsils and pharynx,) this writer says (*Lancet*, September, 1876,) he has found the usual gargles of little value, and depends upon *carbolic acid*. His plan is to apply hot fomentations, with a few drops of turpentine externally to the throat, and then to wrap up the whole neck in flannel. Constant heat, moisture and mild counter-irritation, are to be kept up by frequent changing of these applications. The feet must be at once put into a hot mustard-bath, and if the patient will then get into bed between the blankets, so much the better. Gargles as hot as can be borne must be begun as soon as possible, and the most useful is a watery solution of carbolic acid (1 : 40.) This has a soothing effect on the inflamed mucous membrane, besides sweetening the foul breath. If gargling cannot be performed, *carbolic acid* in glycerine (1 : 20, or 1 : 30,) should be frequently applied by means of a feather to the parts. A brisk saline aperient may be advisable.

By following this plan of treatment, Mr. THAIN declares that the inflammation subsides in a few hours, never running on to suppuration, and then a simple alum gargle may be serviceable. The advantages of the plan are: 1. The carbolic acid relieves pain, checks hawking and tickling of the throat, and sweetens the foul breath. 2. The glycerine keeps moist the dry, irritated mucous membrane. 3. The hot gargle, the fomentations, and the foot-bath rapidly relieve the active congestion.

GARGLES.

In inflammations of the fauces, tonsils and pharynx, an important medication is by the use of *gargles*.

A gargle should be used in small quantities and frequently. One or two teaspoonfuls is abundant, and it should be repeated hourly or every half hour.

Sir J. MURRAY recommends the drawing of the gargle through the nostrils. It thus passes along the posterior nares and reaches the pharynx, touching in its course the whole mucous surface. Conditions such as injected, relaxed or turgid states of the coats and vessels of the posterior passages, which cannot be reached by gargles applied in the usual manner, are removed by those drawn through the nostrils.

Gargles may be made either astringent, stimulant or sedative.

They are contra-indicated when active inflammation of the throat exists. They are purely local in their action, and are powerfully employed in chronic cases of relaxed or ulcerated tonsils and fauces.

The following selected recipes will be found of service:

PROFESSOR JOSEPH PANCOAST, M. D., PHILADELPHIA.

358. ℞, Cinchonæ rubri, ℥ ss.
Aquæ bullientis, ℧ ss. M.

Strain and add:

359. ℞. Tincturæ myrrhæ,
Tincturæ krameriæ,
Mellis despumatæ, āā f.℥ j.
Acidi muratici diluti, gtt. xv. M.
Use as a gargle in cases of chronic sore throat.

DR. N. GALLOIS, PARIS.

360. ℞. Aluminii et potassii sulphatis, ℥ j.
Decocti quercûs albæ, f.℥ iv.
Vini albæ, f.℥ ijss. M.
This is a useful gargle in chronic inflammatory affections of the throat attended with relaxation of the uvula.

361. ℞. Sodii boratis, ℥ j.
Extractii opii, ℈ j.
Mellis, f.℥ j.
Infusi salviæ, f.℥ vj. M.
Employ as a gargle in inflammatory sore throat.

362. ℞. Acidi tannici, ʒss.
Mellis rosæ, f.ʒiss.
Aquæ rosæ, f.ʒivss. M.
Employ as a gargle in chronic sore throat.

Or employ:

363. ℞. Tincturæ myrhæ, f.ʒiij.
Mellis despumatæ, f.ʒj.
Infusi rosæ, f.ʒiv. M.
Used as a gargle.

DR. RENAULDIN, FRANCE.

364. ℞. Ammonii chloridi, ʒj.
Spiritûs camphoræ, f.ʒss.
Oxymellis, f.ʒj.
Decocti cinchonæ rubræ, f.ʒvij. M.
Employ as a gargle in gangrenous sore throat.

365. ℞. Acidi muriatici, gtt. xx–xxx.
Mellis rosæ, f.ʒj.
Decocti cinchonæ rubræ, f.ʒv. M.
Employ as a gargle in gangrenous sore throat.

Another useful local application is the following:

J. M. DA COSTA, M. D., PHILADELPHIA.

366. ℞. Cupri sulphatis, ʒj.
Aquæ, f.ʒj. M.
Apply with a brush three times a week in cases of follicular pharyngitis.

DR. C. C. SCHUYLER, OF TROY, N. Y.

This practitioner writes to the *Medical and Surgical Reporter*, 1878, that in acute tonsillitis he has never failed to abort the disease when seen in the initial stage—that of chill, fever and accelerated pulse. Even when it has existed for forty-eight hours it has been cut short.

The treatment, which is simple, is as follows: a brisk saline cathartic is immediately ordered, and the following mixture is applied to the tonsil with a camel's-hair pencil, once in two or three hours:

367. ℞. Tinct. iodinii,
Tinct. ferri chloridi, āā f.ʒij.
Glycerinæ, f.ʒss. M.
Even in persons subject to periodical attacks, it has been eminently successful.

RÉSUMÉ OF REMEDIES.

Aconitum. Dr. SYDNEY RINGER says the visible effects of aconite on inflamed tonsils, etc., are conspicuous. It should be given at the very beginning of the disease. Half a drop or a drop of the tincture in a teaspoonful of water, every ten minutes or a quarter of an hour for two hours, and afterwards hourly.

Alumen is a popular ingredient in gargles. (F. 286.)

Ammonii Hypophosphis.

368. ℞. Ammonii hypophosphitis, ℥ j.
Syrupi tolutani, f. ℥ viij.
Glycerinæ,
Aquæ, āā f. ℥ iv. M.

To the water and glycerine add the hypophosphite of ammonia, and agitate until dissolved. Then add the syrup tolu and one ounce of freshly powdered *cubebs*, and agitate well before each dose. Ordinary dose, one teaspoonful every one or two hours.

A writer in the *Pacific Medical and Surgical Journal* says: "We have found this preparation to be a very superior remedy for coughs, colds and hoarseness. Its use in small and oft-repeated doses is very beneficial for preachers, singers, and other public speakers, to clear the voice, taken for several hours before they appear in public."

Antimonii et Potassii Tartras, in doses of gr. $\frac{1}{8}$–$\frac{1}{2}$ hourly, is valuable to combat the inflammatory stage of acute tonsillitis.

Arsenicum has been recommended in the sloughing of sore throat.

Belladonna. Tincture of belladonna, gtt. ij–xv every two hours until the patient is relieved, or until its constitutional signs are produced, has been highly commended. It may also be used externally to the throat as a lotion. (See page 284.)

Capsicum is an excellent gargle in the early stages of inflamed sore throat, and also in relaxed throat.

369. ℞. Tincturæ capsici, f. ℥ j.
Aquæ, O ss. M.
For a gargle.

The officinal infusion (℥ ss of the powder to a pint of water) is also used as a gargle.

Catechu. A small piece of gum catechu placed in the mouth and allowed slowly to dissolve, the saliva being swallowed, is a convenient and agreeable remedy in relaxed uvula, irritable fauces and enlarged tonsils.

Cimicifuga, gtt. v–x of the tincture, in the early stages of sore throat, is said to act well. Also where the mucous membrane of the pharynx becomes dry and spotted over with inspissated mucus. (RINGER.)

Cinchona.—Peruvian bark and its alkaloids exert a specific effect when locally applied to inflamed mucous membranes. They are invaluable additions to gargles.

(F. 358.) An attack of acute tonsillitis may sometimes be aborted by a full dose of quinine (gr. x-xv) given at the outset. Dr. GEORGE JOHNSON, of London, recommends the following gargle:

370. ℞. Quiniæ sulphatis, gr. xviij.
Acidi sulphurici diluti, ♏xlij.
Aquæ, f.℥ vj. M.
For a gargle.

Creosotum is an excellent ingredient in gargles for malignant sore throat.

Cubeba. This has received very high praise from MM. TRIDEAU, BERGEROU, TROUSSEU, and other French surgeons, and by Dr. BEVERLY ROBINSON, of New York, as a remedy in simple membranous and in diptheritic sore throat. The mixture employed by the latter most frequently is the following:

371. ℞. Pulv. cubebæ, (freshly powdered,) ℥j.
Syrupi aurantii,
Aq. menth. pip., āā ℥iss. M.
To be taken in twenty-four hours, or a dessertspoonful every two hours.

This is the usual adult dose. From a fourth to a half of the above quantity may be given with propriety in the same lapse of time, to a child three years of age. He lays great stress upon the importance of making use of *the freshly-ground powder.* No other preparation of cubeb is at all so efficacious. Of its action he says: Cubeb tends to arrest mucous secretions, and, on this account, membranous exudation does not re-form as rapidly or abundantly. False membranes already formed lose their intimate adherence with the original site of growth, and are resorbed, or fall into the buccal cavity and are expectorated They also shrivel to a limited degree, and are less covered with liquid secretions. When the pseudo deposit re-appears in the spot from which it has once dropped, or been resorbed, it differs considerably from the primitive one. It is white, or of a white slightly bluish tinge, less thick and prominent, less adherent, and covers a more limited area. It has lost its disposition to extend to new surfaces, whether it be toward the larynx or toward the nasal cavities. The above effects manifest themselves usually in about forty-eight hours from the time the exhibition of cubeb is commenced. Sometimes they are evident before the expiration of this period; occasionally three or four days may elapse before apparent results are obtained.

Glycerina, especially in combination with tannin, is frequently of much use in the later stages of sore throat, applied with a pencil, or with water as a gargle.

Guaiacum is one of the most specific and important remedies in inflamed sore throat. The following is a most satisfactory formula:

372. ℞. Tincturæ guaiaci ammoniatæ,
Liquoris potassæ, āā f.℥ iij.
Tincturæ opii, f.℥ ij.
Aquam cinnamomi, ad f.℥ viij. M.
For a gargle. A teaspoonful every hour.

Mr. JOSEPH BELL strongly recommends the internal administration of powdered guaiacum—half a drachm suspended by means of mucilage, in a draught, every six hours, in large doses—as being almost specific in the cure of cynanche tonsillaris. Dr. R. J. FRITZINGER, of Pennsylvania, has found the following an almost certain preventive of ulceration in tonsillitis:

373. ℞. Potassii chloratis. ʒj.
Spiritûs ætheris nitrosi, f.ʒss.
Tincturæ guaiaci, f.ʒiss. M.

A teaspoonful every three hours in sweetened water. (*Medical and Surgical Reporter*, November, 1874.)

Hydrargyrum. Dr. RINGER says that in acute tonsillitis, when the tonsils almost meet, gr. $\frac{1}{4}$ of hydrarg. powder, every hour, is beneficial, even if an abscess has formed.

Ice, constantly sucked, a small piece being kept in the mouth, is a valued alleviant.

Iodinium. The tincture of iodine is occasionally applied to the sores left by faucial inflammation and as an absorbent.

Potassii Chloras is a frequent ingredient in gargles for the throat. (F. 353.) It may be combined with carbolic acid:

374. ℞. Potassii chloratis, ʒij.
Acidi carbolici, f.ʒss.
Aquæ cinnamomi, f.ʒviij. M.

For a lotion or gargle.

Potassii Nitras was formerly a common application to inflamed throat, but is now largely supplanted by the chlorate.

Quiniæ Sulphatis. See Cinchona.

Rhus Glabrum. Dr. H. C. WOOD, JR., states that the most generally efficient gargle in ordinary sore throat he has ever met with is the following

375. ℞. Pulv. rhus glabri, ʒij.
Potassii chloratis, ʒss.
Aquæ bullientis, Oj. M.

Simmer in an earthen vessel, occasionally stirring, to three-fourths of a pint; strain, and use as a gargle.

The sumac berries contain considerable bimalate of calcium, the malic acid in which seems to give them an especially beneficial influence on inflamed mucous membranes.

Tannicum Acidum, must be used for its astringent qualities.

Terebinthinæ Oleum. In the *Leavenworth Medical Herald*, 1876, Dr. S. H. ROBERTS strongly recommends the use of turpentine externally in tonsillitis. He folds the flannel to four thicknesses, wrings it out in hot water, and pours oil of turpentine over a spot the size of a silver dollar. The flannel is then applied over the sub-parotid region, and the fomentation continued as long as it can be borne. After removal, a dry flannel is applied, and the same

region rubbed with turpentine every two hours. This application is continued daily till resolution occurs. The doctor believes, from the evidence of his long experience, that thus applied early in the disease the oil of turpentine has almost a specific effect in tonsillitis. That its action is not simply that of an irritant he has proved by employing mustard, croton oil, tr. iodine, etc., in the same class of cases. They always failed to diminish the inflammation of tonsils, while the turpentine succeeeded. (See also F. 357.)

Xanthoxylum.—A decoction of prickly ash bark is an efficient gargle in chronic pharyngitis with dryness of the mucous membrane. In similar cases also the fluid extract, ♏x–xxx, or the tincture f.♐ss–j, is a successful remedy.

TONSILLAR HYPERTROPHY.

JAMES E. GARRETSON M. D. D. D. S.

Tonsillar hypertrophy is rather a systemic indication than a local disease. More attention will be found required to diet, clothing, exercise, and general mode of life, than to medication.

Among medicine said to possess specific power on enlarged tonsils, *sulphate of potassium* holds the most prominent position. It is to be given for four or six weeks, in doses of gr. v–xv. It is usual to combine it with rhubarb and some of the aromatics to insure laxity of the bowels. It is, without doubt, efficient in many cases.

Where the arthritic dyscrasia can be detected, *colchicum* has been highly commended for enlarged tonsils. It should be taken internally and applied externally as a liniment, in combination with linimentum saponis.

Another frequently successful remedy, particularly applicable where the condition is coincident with scarlatina, is *acetate of zinc.*

376. ℞ Zinci acetatis, ℈j.
Glycerinæ, f.♐ss.
Aquæ, f.♐vij. M.
A teaspoonful every four hours, or oftener.

The local treatment is either by the use of alteratives, by cauterization or by amputation. As an alterative, the *iodide of zinc* holds, perhaps, the most prominent position. It is used in solution, gr. x–xxx,

applied with a brush two or three times in the twenty-four hours; or, as the treatment advances, it may be applied pure, as it deliquesces when exposed to the air.

The second mode of treatment is by cauterization, as recommended by Dr. RUPPANER. (See below.) Dr. RUMBOLD, of St. Louis, claims to have treated successfully a number of cases of enlarged tonsils by injecting the glands, by means of a hypodermic syringe, with this solution of iodine:

377. ℞. Iodinii, gr. ij.
Potassii iodidi ʒ ij.
Aquæ, f.ʒ j. M.

Generally, a slight inflammation followed the injection, but it soon subsided. From twelve to seventeen injections—ordinarily two a week—were sufficient to reduce the gland to its normal condition.

Finally, amputation may be resorted to.

Professor JAMES SYME recommends that in removing the tonsil, it should be seized with a hook, drawn forward, and excised with the scalpel. This method, recommended by CELSUS, is, in Mr. SYME'S opinion, less liable to be followed by hemorrhage than any of the plans later devised.

In removing the tonsil with the guillotine, it is important to remember that the organs are situated obliquely, like the pillars of the soft palate; more pressure should be made upon the lower than on the upper border of the instrument, and the tonsil will then be readily seized. It is better not to attempt to remove the whole of the organ, for after removing a portion, the rest will atrophy, and removal of the whole is liable to be followed by dangerous and very obstinate hemorrhage. The hemorrhage may be due to the existence of inflammation at the time of operating, which inflammation also has a tendency to make the substance of the organ friable, so that it will have to be removed in small pieces; hence it is always advisable to defer the operation until the inflammatory stage has passed.

All the usual methods of checking the bleeding are unreliable, with the exception of direct compression made by the finger of the surgeon. The finger should be introduced into the mouth and applied directly to the wound, while counter-pressure is made from in front. This position must be maintained for several minutes, notwithstanding the attacks of suffocation, the efforts at vomiting, and the cough which

the method excites. The hemorrhage is generally arrested at the end of two minutes.

ANTOINE RUPPANER, M. D., OF NEW YORK.

This practitioner prefers in chronic tonsillar enlargement to use the *London* paste, recommended by Dr. MORRELL MACKENZIE. He states that it should be prepared in the following manner:

A quantity of equal parts of finely-pulverized and mixed *caustic soda* and *unslacked lime* is kept on hand. When an application is to be made to the tonsils, a little of the powder is put into a small porcelain cup, and a few drops of absolute alcohol, which is kept near at hand, are added; the two are carefully mixed with a glass rod, when the paste is ready for use. Care must, however, be taken that it be of the proper consistency. If too thin, it is apt to find its way to parts which ought not to be touched; if too thick or lumpy, the paste will not readily stick, and little pieces might be swallowed. To apply the paste, a glass rod of sufficient length ought to be used. One end of it, which must be smooth and slightly funnel-shaped, is dropped into the paste, and a greater or lesser portion of the surface touched, as occasion may require.

To apply the paste the patient should be placed in the position for laryngoscopy. The tongue is then to be depressed with the spatula, and the paste applied to the enlarged surface for two or three seconds. The action of the escharotic upon the tonsil is rapid. The mucous membrane almost instantly assumes a deep flesh color, and presently a dark, blackish spot is seen streaked with blood. The following day the tonsil is covered with a whitish-yellow eschar.

The inconsiderable amount of suffering produced by this application is noticeable. Children hardly pay any attention to the pain, or make light of it. At the longest, the discomfort lasts only about two or three minutes. Subsequent applications are accompanied with less, if any pain at all.

The operation is again to repeated in two or three days. The number of applications will depend upon the nature of the case.

ARTHUR TREHERNE NORTON, F. R. C. S.*

When the tonsils of children are enlarged, it is necessary to treat them constitutionally as well as locally. The parts should be painted with a solution of equal parts of tincture of iodine and water, or with the pure tincture, ceasing the application for a day or two at a time, rather than to allow the surface to become abraded by the irritant action of the drug. The child should be taught to gargle, and the application then exchanged for a gargle of tannic acid (gr. viij. to ℥ j,) or of tincture of iodine (℥ ss to ℥ j.) If the child is strumous, iodide of iron and cod-liver oil are called for; and if there are any signs of inherited syphilis, iodide of potassium, gr. ij three times a day, accompanied by small and repeated doses of gray powder, will be called for. If after two months of this treatment there is no appreciable result, the condition may be looked upon as incurable, and a resort to an operation is the only alternative.

In people over twenty years of age, by far the majority of cases of hypertrophied tonsils are due to *syphilis*. The tonsils are purple or dark blue, rather soft, not painful, very liable to ulcerate. The pillars of the fauces are thick and fleshy. Mr. NORTON usually prescribes:

378. ℞. Potassii iodidi, gr. v.
Liq. hydrarg. perchloridi, ℥ iss.
Decocti cinchonæ, ℥ j. M.
At a dose, thrice daily.

After giving this for two or three weeks he changes it to tinctura ferri chloridi, or to the citrate of iron and quinine, alternating the two classes of remedies from time to time. If there are the slightest symptoms of salivation, he ceases the mercury at one. As a gargle he gives:

379. ℞. Hydrargyri perchloridi, gr. ij.
Aquæ, ℥ viij. M.
Use night and morning, or thrice daily.

This is changed from time to time for:

380. ℞. Zinci chloridi, gr. xvj.
Aquæ, ℥ viij. M.

**Affections of the Throat and Larynx.* London, 1875.

Or he applies locally a solution of nitrate of silver, gr. iij to f. ʒj. This treatment is in the highest degree satisfactory. In this form of enlargement the tonsils should never be removed.

Parenchymatous injections of *ergotin* have been used, with moder ate success.

Fel bovinum, (ox-gall,) applied locally, is said to have a remarkably prompt effect in dissipating tonsillar enlargements.

HERNIA.

The therapeutics of hernia is confined to those measures which are auxiliaries to the taxis, and those by which an operative procedure may be avoided. They may be considered under the following headings:

Anæsthetics.—These are considered indispensable as relaxants in preparing for the taxis. Chloroform is generally preferred. It should be given to the extent of complete obliviousness.

Aspiration.—Several French and some English surgeons very earnestly advocate the employment of aspiration in all cases of irreducible strangulated hernia. It is quite safe, whereas the ordinary operation shows a mortality of from 25 to 45 per cent. With such facts as these before us, it becomes a very serious question indeed, whether any surgeon is warranted as a rule in performing the old operation for hernia, before having tried the simpler and safer plan of aspiration. The one, if not sufficient, does not preclude the use of the other. The safety with which the aspirator can be used would encourage us to resort to early operative interference of this simple nature, while we might shrink from the responsibility of using means of a far more risky character.

The advocates of aspiration in hernia do not pretend that it is of universal applicability. Its use will not tend to the reduction of a strangulated epiplocele, but can we always be certain with what we are dealing in such circumstances? Better give the patient the benefit of the doubt, and then operate in the usual manner if there is no reduction. Neither will it suffice *per se* to reduce herniæ compli-

cated by bands of adhesion; but its use will, by reducing the size of the gut protruded, make the ulterior cutting operation easier. In a very small hernial knuckle, such as is not infrequently found in the femoral region, little will be achieved by aspiration. With these exceptions, there is abundant proof that the process is of wide applicability, and eminently useful for the reduction of herniæ resisting all efforts at replacement by taxis, even when aided by chloroform freely administered. There can be little doubt that the general use of the aspirator would in such circumstances save many a useful life, which is sacrificed by the continued employment of a very dangerous operation for one incomparably safer and easier of performance.

Baths.—The warm bath is used to depress the system and produce relaxation of the abdominal muscles. Commencing with a temperature of 95°, it should be raised to 110° Fah. Owing to its inconvenience, however and the great facility of chloroform, the bath is but little used at present.

Cold, applied to the tumor and around it, is valuable in effecting relaxation and preventing inflammation. It may be done by laying a bladder of pounded ice on the tumor, or by cloths wrung out in ice-water, or by a refrigerant lotion, (as p. 33,) or by a thin sponge saturated with ether, by enemata of ice-water, or by the ether spray.

Cupping.—Dr. B. H. WASHINGTON, of Tennessee, (*Nashville Journal of Medicine and Surgery*, September, 1876,) states that the Russian peasantry reduce hernia by a dry-cupping on a grand scale; they take a small cooking-pot, and make the bottom as hot as they can without making the rim too hot, and then applying it over the abdomen, cool the abdomen with cold wet cloths, and thus suck up a large portion of the intestines, that they are able to make sufficient traction to draw it back.

He has modified this plan very successfully, and considers it far superior to the ordinary tedious, pai ful, and sometimes dangerous taxis. His plan consists in applying a dry cup to the abdominal wall, say over the umbilicus; then let an assistant stand between the legs of the patient and lift the hips as high as he can; then the operator, drawing on the dry cup, produces a vacuum, and, atmospheric pressure being superadded to the weight of the intestines gravitating towards the chest, a reduction is easily effected in less than a minute.

The operation is almost painless, and really seems so to the patient,

for the relief from the preceding pain is so great that he never says a word about any suffering from the operation.

This method was also suggested by Dr. LIPSCOMB, in the *American Practitioner*, October, 1875.

Dilatation.—Dr. H. R. ALLEN, of California, advocates the use of the dilator for the relief of the strangulation, without having recourse to herniotomy. Dr. ALLEN says that some years ago he succeeded in reducing a few cases of severe strangulation which seemed urgently to demand herniotomy as the only hope of relief, by introducing the index finger forcibly into the ring and distending it by lifting or pulling upon the stricture. He says: "I found it easily lacerated in some cases, and the tension was at once relieved; but other cases proved more firm and unyielding, and I feared that the necessary pressure to insert the finger might be injurious; although the tissues of the hernia rested upon a smooth posterior wall, and the finger substituted a distributed pressure, instead of the sharp cutting edge of the stricture, I felt that some instrument might be devised which would enable me to accomplish the same result without any of the apprehended dangers."

The instrument which Dr. ALLEN has devised he terms a dilator. "To use the instrument the patient is placed upon his back, the scrotum invaginated with the finger, which is carried up to the ring. The finger guides the blunt probe into the stricture as it would a uterine sound into the uterus." The advantages claimed for this method are that it is "perfectly safe, as the skin is not punctured and the laceration is subcutaneous. * * * The amount of laceration is perfectly at the option of the operator; and if the first attempt proves insufficient, it may be repeated. * * * One great advantage is, it is admissible at any stage, when the parts are not fatally injured, and if employed immediately when taxis fails, all the danger of inflammation or gangrene is avoided. The laceration, instead of being injurious, has so far proved an advantage, by inducing sufficient inflammation of the ring to produce adhesion if a firm truss is at once employed, and quiet enjoined. The operation, so far, has not only been easy and safe, but a life-saving treatment, relieving strangulated hernia of its terrors and fatal results."

Further particulars respecting this method, together with a woodcut of the instrument he employs, will be found in the original paper

by Dr. ALLEN, in the *Medical and Surgical Reporter* for July 10th, 1875.

Elastic Pressure.—Some European surgeons report reductions of scrotal herniæ by winding layer after layer of elastic bandage upon the scrotum, until the tension of the rubber forces the gut back into the abdomen.

Electrolysis was suggested by NELATON, and has been lately employed by Dr. MORARI, of Madrid. (*Liglo Medico*, 1880.) In a case where taxis was unavailing, the electro-magnetic machine of Breton was used, one rheophore being applied *in ano*, while the other was placed in contact with a needle passed deeply into the tumor. The current was applied interruptedly at intervals of ten minutes. At the first application the hernia became considerably reduced in size. After the second the needle was removed, and taxis having been applied the whole mass was readily returned into the abdomen.

Enemata.—When the hernia is not very acutely strangulated, it is good practice to commence the treatment by the administration of a large enema. This, by emptying the lower bowel, will alter the relation of the abdominal contents, and may materially aid reduction. The best enema is one of gruel and castor oil, with some turpentine added. (ERICHSEN.) A full-sized tube should be used, passing high up into the gut. Enemata of ice-water sometimes are efficient relaxants to the ring. In very desperate cases of strangulated hernia with stercoraceous vomiting, where an operation could not be performed, Mr. W. ADAMS, of London, reports some extraordinary cures with large enemata of mixed oil:

381. ℞. Olei olivæ, Olei ricini, Olei terebinthinæ, āā Oiv. f.℥iij. M.

This whole amount, (over two quarts,) for one injection, to be repeated if required.

The injection should be performed slowly, with an elastic tube nine or ten inches long. (*British Medical Journal*, December, 1874.)

Ergot, both by the mouth, locally to the tumor, by hypodermic injection and enema has been tried, and in some cases with apparent success. (*Medical and Surgical Reporter*, May 3d, 1879.)

Errhines.—Dr. CHARLES DENISON, of Colorado, has found the act of *sneezing* of decided assistance as an auxiliary to the taxis. Ordinary snuff may be used. He explains the action of the sneezing by saying

there seems to be a billowy movement of the anterior wall of the abdominal cavity, from above downwards, which is suddenly reversed. This reversed action is accompanied by a sudden relaxation, as it were, at which instant a little of the contents of the hernial sac shoots back through the intestinal ring.

Heat.—Hot fomentations and hot immersions are valuable relaxants. There is no rule which can be laid down as to when heat or cold should be preferred.

Inflation.—Inflation of the lower bowel in hernia has for some time been popular with French surgeons to aid in reduction of herniæ. A long elastic tube should be inserted into the rectum after the latter has been well washed out, and air slowly injected by a bellows, syringe or hand ball. The inflation produced exercises a traction on the implicated bowel much more accurately in the line of reduction than can pressure from without. It is well to aid the efforts of inflation by applying cold to the tumor, and properly relaxing the muscular system.

Nauseants.—In former times tobacco, tartar emetic, lobelia, etc., were used as depressants, and to relax the system. Their employment is wholly superseded by anæsthetic and other means.

Opium.—A large dose of opium, by hypodermic injection of morphia or otherwise, will induce relaxation and avoid the necessity of an operation.

Position.—To obtain the greatest aid from the force of gravity is of much importance in the taxis, and to do this, everything depends upon placing the patient in the most suitable position. The following rules have been laid down by good authorities:

The *erect position* is that proper in the reduction of strangulated inguinal hernia, the thigh flexed and adducted, the head and shoulders bent forward, the spinal column inclined toward the groin in which the tumor exists. If this fails, the patient may be placed upon his back, the head and shoulders raised on pillows, inclined as before, the knees drawn up and adducted; or, in a *semi-prone* position, upon his hands and knees, with head depressed and pelvis elevated; or, as has been highly recommended, in the semi-prone position, upon the side of the hernia, the thighs flexed upon the body. Complete *inversion* —holding the patient up by the feet—has been much lauded by some surgeons, but according to others rarely proves successful, and is very

exhausting to both patient and physician when it falls to the lot of the latter to perform it.

A somewhat modified form of inversion, which he calls the "tractile method" has been described by Dr. D. LEASURE, of Pittsburgh. (*American Journal of Medical Science*, April, 1874.) It is as follows:

After having given the patient a full dose of morphia, or morphia and atropia, hypodermically, to allay pain and vomiting, hot fomentations are applied to the hernial tumor for the space of an hour or two, so as to insure as favorable a condition as possible of the contents of the sac, before attempting to return them into the abdominal cavity; he administers an anæsthetic, and when it has well overcome muscular resistance the patient is raised by the feet or hams till only the head and shoulders rest upon the bed. The muscles of the abdomen, diaphragm, and the muscles of the chest which control the bony framework of the thorax, are thus relaxed by the anæsthetic. The abdominal viscera gravitate against the diaphragm, which offering feeble resistance, retreats before them into the cavity of the chest, while the diaphragmatic breathing is diminished, the respiration becomes almost entirely thoracic, and the contents of the abdominal cone, now resting on its base instead of its apex, fall by their own gravitation still further away from the brim of the pelvis, and the mesentery, borne down along with its attached bowel, pulls every portion of its intestinal border after it, and if any portion of that intestinal border be entrapped within a hernial sac it pulls it out, and if there be any portion of omentum in the sac, the weight of the intestines, now resting in the reversed lap of the omental apron, drags it down towards the diaphragm and pulls it also out of the hernial sac, and the hernia is reduced.

Another still further modified form of inversion has been used by Dr. J. H. THORNTON, of the Indian Medical Service. (*Lancet*, Aug., 1875.) It consists in placing the patient in such a position as to bring the force of gravity into play to reduce the rupture. This may easily be effected by raising the foot of the patient's bed, and keeping it supported at an angle of 45°. In this posture the intestines naturally gravitate towards the upper part of the abdominal cavity, and gradually draw in the ruptured portion. It is evident from the nature of the case, that a force acting gradually and equally from within the

abdomen must be far safer and more effectual than any pressure applied externally.

He believes that the advantages of inversion over all other modes of treatment are, that it is generally effectual, absolutely safe, and universally applicable. It can be used by any person, at any time, in any place; and should it prove unsuccessful in effecting reduction (which will rarely be the case unless adhesions have formed), the patient is in a more favorable condition for the performance of the necessary operation than he would be after the employment of the other methods.

Purgatives are sweepingly condemned by some authorities. Mr. ERICHSEN, however, points out that in the treatment of the *incarcerated hernia* of elderly people a good purgative injection, as the compound colocynth enema, should be thrown well up into the bowel; and that after the reduction an active purgative should be administered by the mouth.

Relaxants.—The most important of these are the anæsthetics (which see.) Nauseating relaxants should be used continually or not at all. *Coffee* has proved in a number of instances very valuable. A number of small cups of very strong hot coffee, administered at short intervals, will often greatly facilitate the taxis.

SUBCUTANEOUS INJECTIONS.

The *radical cure* of hernia has been successfully practiced in a number of cases where the herniæ are small, by the injection of stimulating liquids in the neighborhood of the neck of the sac, in the manner proposed by

PROFESSOR JOSEPH PANCOAST, OF PHILADELPHIA.

The contents of the hernial sac being returned into the abdomen, and the ring explored to ascertain that no portion of the intestine protrudes, the pad of a well-fitting truss is slipped down so as to make pressure on the inguinal canal, and prevent any escape of the hernia. With the fore-finger of the left hand, the spermatic cord, as it passes out from the external inguinal opening, is pressed upwards on the pelvic bone, so as to prevent it from being injured. A delicate trocar and canula, the latter having fitted to it a small Anel's syringe, is now carefully but firmly forced through the integuments with a rotary

motion to facilitate its progress, and pushed forwards till it enters the external inguinal ring, or neck, at the sac. The trocar being now withdrawn, the canula is kept firmly in place, and twenty or thirty drops of the tincture of iodine, tincture of cantharides, or sulphuric ether, thrown in, and lodged in the neck of the sac, when this is practicable, or else in the vicinity of the external abdominal ring. Subsequently a small compress is applied over the minute wound made by the trocar, the pad of the truss slipping down over it, and the patient directed, for a week or two, to maintain the recumbent position.

In addition to the injection, in some of the operations, a tenotomy knife is introduced, and the internal surface of the neck of the sac scarified. The operation is not followed by bad results, the pain and inconvenience hardly amounting to that presented by a case of hydrocele treated by injection; and it may be concluded that in ruptures where the neck of the sac is small, and the abdominal aperture not too much enlarged by repeated descents of the hernia, there is a prospect of a radical cure; and that, in most cases the operation mitigates the infirmity, allowing the hernia to be more readily retained by the ordinary mechanical means. (Dr. J. MASON WARREN, *Surgical Observations*, Boston, 1867.)

DR. GEORGE HEATON, OF BOSTON.*

The method for the radical cure of hernia proposed by this writer, and practiced by him successfully in a number of instances, he calls that *by tendinous irritation*. It is not unlike the preceding in its principle, but differs from it in several important details, and the irritant employed.

The patient is placed on a bed in a recumbent position, the contents of the hernia returned into the abdomen, and the hernial sac also, when possible. Taking an instrument resembling an ordinary subcutaneous syringe loaded with the necessary amount of the irritant fluid, the operator introduces its beak into the inguinal canal, but outside of the sac, if this has been suffered to remain, in the following manner: invaginate the right forefinger in the scrotum and find the external abdominal ring, then with the left forefinger press perpendicularly upon the integument directly over this ring, and use sufficient

**The Cure of Rupture.* Boston, 1877.

force to, if possible, press the integument together with the finger directly into the ring. The left forefinger being at or in the ring, the spermatic cord and the sac, if in the way, are to be pushed to one side, so that nothing may remain between the external pillar of the ring and the finger except the integument and subjacent superficial fasciæ. Keeping the left forefinger thus, take the instrument in the right hand and introduce its freshly-sharpened and polished beak *quickly*, penetrating the integument and superficial fasciæ, just passing but not grazing the external pillar, and entering the canal at once. Then remove the left forefinger and gently insinuate the beak further on, well into the canal, exercising the greatest care not to impinge upon the spermatic cord, which is sensitive to the slightest touch, or upon the fibrous walls of the canal. To wound any of these parts endangers the success of the operation, and to penetrate the transversalis fascia would be particularly unfortunate. If the operator in attempting to pass through the ring should impinge upon or transfix one of the pillars (an accident to which the tyro is very liable,) the instrument will not be able to be freely and easily moved about, which it is to a remarkable extent when the canal is successfully entered. But before proceeding any further the surgeon may do well to confirm his diagnosis of position by transferring the instrument to the left hand, while with the right forefinger invaginated in the scrotal tissues he explores the inguinal region, and examines the exact situation of the beak. Beyond the prick of the puncture, the patient suffers but little pain if the introduction is skillfully performed. But any awkward movements of the beak about the spermatic cord will cause sharp pain, which is referred to the testicle or to the deeper parts of the abdomen.

Having satisfied himself that the beak of his instrument is in the canal, the surgeon then deposits about ten minims of the liquid irritant, emitting drop by drop, and spreading it as much as possible. The beak of the instrument should be well swept about while delivering its contents, passing around the exterior of the sac if unreduced, and wetting all the fibrous tissues. Particular care should be taken that the intercolumnar or arciform fibres, and the inner edges of the external ring are wet with the irritant. The canal is usually found much more free than would be anticipated, and any adventitious adhesions can be either broken or avoided. A small though essential amount of the irritant should be placed in the extreme upper portion of the canal, so as to operate upon the fibres embracing the internal

abdominal ring. Owing not only to its proximity to the abdomen, but also, and more especially, to the usual presence in the upper part of the canal of a few muscular fibres of the internal oblique, the sensitiveness to irritation here is extreme and the slightest amount of material produces all the effect that is usually desirable.

Having wet the entire fibrous interior of the canal and of the inguinal rings, the beak is then withdrawn quickly, so that none of the injection may be left in the cellular tissue and fasciæ lying beneath the integument and just exterior to the external abdominal ring. At the instant of withdrawing the beak, press the finger over the puncture, thus preventing any oozing of blood which might occur if the skin is delicate, and also in the case of a hernia with a free opening hindering any of the injection which has not been absorbed from oozing outward. The application of the irritant may cause some slight immediate pain, which is soon allayed by the morphine which is contained in the injection. The previous protrusion should not be allowed to descend after the application of the irritant, nor the patient be permitted to assume even the sitting position, until a suitable bandage or means of support has been properly applied.

Irritant.—Take of Thayer's fluid extract of quercus alba, prepared in vacuo, one-half an ounce; of the solid alcoholic extract of quercus alba, about fourteen grains. Triturate with the aid of gentle heat for a long time in a mortar until the solution is as perfect as possible. It is well not to exceed this amount of the solid extract, else the mixture will be too irritating. Dr. HEATON usually prepares a quantity of this mixture sufficient for six months' or a year's supply, and is very cautious in first using it, adding a little more of the solid or the fluid extract, accordingly as he observes it produces too little or too great an effect. Having once adjusted the proportions in this manner, and satisfactorily tested the mixture, he uses it and no other until the supply is exhausted. The proportions never need vary much from what is stated above.

Of late years it has been his habit to add to this mixture the sulphate of morphine in the proportion of about one grain to the ounce. This has the effect of diminishing the dull aching that follows the operation, which is caused by the irritation of tendinous tissue. It also serves the further purpose of constipating the bowels, which is also induced by the tannin in the mixture. The amount of this mixture used at any one operation is, as said before, about ten minims.

Taxis.—The rules for taxis properly belong to operative surgery. The following brief suggestions, as to when it may be employed, from an article by Dr. MAX SCHEDE (*Centralblatt für Chirurgie*, Nov. 25th, 1874,) will, however, be in place:

When the integuments still retain their normal condition, when the tumor is not tender, and when no crepitation can be felt, we can always conclude, according to this author, that the walls of the gut still have sufficient resistance to permit energetic taxis without danger. It is impossible to lay down general rules as to the period when attempts at reposition are still admissible: neither the number of days since the incarceration nor the presence or absence of stercoraceous vomiting can furnish these. In each case a thorough local examination, combined with a consideration of the general condition of the patient, is called for. In order that taxis may succeed—firstly profound narcosis is necessary; secondly the position of the outlet must be determined exactly. The author generally employs both thumbs, with which he exerts alternate strong pressure in the direction of the outlet on a portion of the tumor which is near it; when the hernia is very small, he exerts his pressure directly on the summit of the hernia. In the cases successfully reduced by taxis, the author has seldom exerted pressure less than five minutes, and never more than a quarter of an hour, but during this time he has employed a degree of force which would generally be regarded as inadmissible. He believes that the danger of causing *reduction en masse*, and of failing to recognize it when it has been produced, is not great; for, though the persistence of symptoms of incarceration may sometimes be confounded with the effects of the anæsthetic, the tendency of hernia to reproduce itself will always be an indication that the reduction has not been performed in a proper manner.

Taxis *through the colon* by introducing the hand into the rectum is of equivocal value.

Trusses.—The following explicit directions are given by Dr. D. HAYES AGNEW: "When you advise a patient to use a truss you should always make it a rule to superintend its first application. If you cannot be present, give your patient the following directions: 1. Never accept a truss until you get one which fits. 2. Try it by putting it on and (*a*) stooping down and rising up suddenly; (*b*) by coughing violently and persistently; (*c*) by separating the limbs and stooping; (*d*) by crossing the limbs and sitting down; (*e*) by going

through all kinds of motions. Of course, the truss is not a proper one if the hernia slips away from it in the course of any of these movements. In wearing a truss the following precautions must always be taken: 1. The patient must never take off the truss till he is in the recumbent position. 2. Before putting it on again the parts must be rubbed until they are all aglow, so that active circulation and full secretion are maintained. 3. The truss must be taken off the last thing before the patient retires, and put on the first thing in the morning. 4. In the case of a child the truss should be worn all the time, day and night, after the first feelings of discomfort have passed away. At first it must be taken off three or four times a day, while the skin is thoroughly rubbed and anointed, and then put carefully on again. If these rules are conscientiously adhered to, a cure may be expected in the course of two or three years. The truss, at any rate, should not be taken off sooner than that. A permanent cure is much more likely to ensue if a hard pad has been employed.

Venesection.—As an efficient means of relaxing the system, general blood-letting was formerly in vogue. Chloroform, however, has now superseded it. Sometimes *leeching* around the hernial tumor will be a valuable aid in effecting reduction, especially when the local inflammation is high.

IRREDUCIBLE HERNIA.

An irreducible rupture should be protected by a truss with a large concave pad, or by a suspensory bandage, the object being to obtain constant and well-graduated pressure. Various apparatus for this purpose have been devised.

Something may also be done by medical treatment in such cases. Mr. BRANSBY COOPER has recommended that an attempt should be made to convert the irreducible into a reducible hernia, by keeping the patient in bed several weeks on a low diet, with the continued application of ice to the tumor; and, if it contain much omentum by giving small doses of blue pill and *tartar emetic*, so as to promote the absorption of the fat.

In the opinion of Mr. ERICHSEN, this plan deserves further trial, as he has witnessed successful results in some cases. Instead, however, of the medicines mentioned, he substitutes *iodide of po*
with advantage.

This suggestion has been put in practice by Dr. R. O. COWLING, of Kentucky (*Archives of Clinical Surgery*, July, 1877,) in a case of irreducible femoral hernia of the right side. He ordered for the patient an abdominal supporter with a concave pad, and prescribed the iodide of potassium, gr. x thrice daily, with directions to keep it up as long as it seemed to agree with her. The benefit of the treatment was early and marked. She continued it for several months, the hernia decreasing in size, and finally becoming reducible.

INTESTINAL OBSTRUCTION, OCCLUSION AND INTUSSUSCEPTION.

PROFESSOR GEORGE H. B. MACLEOD, F. R. S. E., OF THE UNIVERSITY OF GLASGOW.

This author says that in any case of intestinal obstruction, *opium* is our sheet anchor to combat inflammation; it must be used freely. *Belladonna* and *atropia* are now little used. *Leeches* are rarely employed. *Ice*, by its power of calming irritation and spasm, is of much use. In most cases, *purgation* must be wholly avoided and only *enemata* used. When given early, in most instances, purgatives only augment the already exaggerated peristalsis; and, if administered late, they have an exhausted and paralyzed bowel to deal with. When, however, a careful examination fails to show that any organic obstruction exists, and there is otherwise no objection to the practice, the exhibition of from ten to twenty grains of calomel in one dose—repeated, if necessitated by its rejection—often work miracles. *Galvanism* has been tried in cases of obstruction, occasionally with good effects. It is when stercoraceous masses occasion it, that this mode of treatment is of most service. In 1825, LEROY D'ETIOLLES recommended the current to be passed from the mouth to the anus; but DUCHENNE proposed that one pole be inserted into the rectum and the other be moved over the surface of the abdomen, according to the place of suspected stoppage in each case. Even in cases of obstruction by foreign bodies, the use of purgatives is reprehensible. It is [illegible] false coins, who swallow their base [illegible] system the very reverse of purga-

tion best rids them of their burden. They keep their bowels confined and distended by bulky and costive food, so as to envelop the coins and allow them to be slowly carried downwards.

If the bowels be much distended with air, they may be punctured with advantage. By percussion, one can easily make out the best spot for the insertion of the small trocar and canula; and then, if gentle pressure be made on the abdomen, both air and fluid may be made to escape. As the distension goes down, the tube must be gently pushed on to prevent it escaping from the portion of the gut it has entered. There is no fear of undue inflammation or extravasation, as adhesions soon form, even when it is desirable to leave the canula in place. Doubtless, in many cases, the aspirator would be found very useful in unburdening the bowel, and so diminishing congestion and tension, and improving the chance of its resuming its function. In cases fitted for it, the small aperture made by the canula might be enlarged by means of a tangle-tent, so as to serve the purpose of an artificial anus. It has been frequently found, after death, that a vast amount of the accumulation about the place of obstruction was sufficiently fluid to be removed in some way as has been above hinted at.

In all cases of obstruction, a most restricted dietary must be observed; in fact, only enough given to support life. No solid or bulky food should be allowed; but small quantities of the most soluble and sustaining meat essences, milk, egg and brandy flip, ice, etc. The stomach must not be loaded even with water. Nutritive enemata will help much.

No reference need be made to exploded methods of administering mercury, shot, etc., to act mechanically in cases of obstruction; and such medicaments as tobacco-injection, strong coffee, ergot, nux vomica, etc., are now very seldom employed.

In volvulus and stricture, the chance of successful treatment is very small. By operation, the bowel may occasionally be reached above the place of closure. Internal herniæ, even if recognized, are almost hopeless For invagination low down, large enemata or the old Hippocratic plan of distending the bowel (now easily accomplished under chloroform) with air introduced by bellows or special instrument, from below, should be employed, if they can be carried out before the portions of bowel involved have become hopelessly fused together. The inversion of the patient cannot do good; but the careful insertion

of a bougie (possibly armed with a sponge) might prove advantageous in certain cases of intussusception pressing down near the anus. The strength of the patient should be well supported, and time gained for the occurrence of those changes in the bowel by which a spontaneous cure may be secured.

Stercoraceous accumulations must be mechanically removed. A lithotomy scoop or ordinary spoon may get at a good deal of the material; but a stream of warm water, made to play vigorously on the mass, or got more slowly to permeate or integrate it, by being allowed to come into contact with it through a long tube connected with a reservoir raised high above the bed, is a better plan. A calomel and jalap purge will complete the cure.

M. ANTOINE TARIOTE, OF PARIS.

In a thesis on the subject, (1874,) this writer concludes that intestinal occlusions may be divided into two very distinct categories: 1. Intestinal occlusions of slow origin, caused either by simple accumulation of fæcal matters, or by paralysis of the intestine or diminution of its size in consequence of the presence of foreign bodies, stricture and compression; 2. Intestinal occlusions which make their appearance very abruptly and rapidly, arising from true internal strangulation, invagination, retroversion or twisting of the intestine. In gradual intestinal occlusion, opium can only be used to overcome the pain or sufferings of the moribund patient. In sudden intestinal occlusion, if there be no well-confirmed internal strangulation, opium employed from the commencement, concurrently with applications of ice to the abdomen, or blood-lettings, calms the local irritation and the resultant spasm. It also quiets the accidents arising from the general irritation, anxiety, small pulse, chilliness, etc. This treatment may by itself re-establish the circulation of the gases. The re-establishment of the circulation may be advantageously hastened by the administration of a purgative.

DR. THOMAS HAWKINS, OF NEW YORK.

The use of large fluid injections is strongly urged by this writer. (*Medical and Surgical Reporter*, December, 1876.) He reports a

number of successful cases, and adds that there are three rules essential to success:

1. The use of the utmost force possible, but with great care and caution.

2. Persistent and continuous repetition of the injection until the passage is effected.

3. The adoption of a suitable position for the patient.

Dr. HAWKINS uses simple warm water. That containing *ox-gall* in solution gr. x–xxx, is much more efficacious, especially in cases arising from partial paralysis of the bowels.

Dr. WILLIAM BRINTON, (*Dublin Journal of the Medical Sciences*, May, 1869,) gives a rule by which fluid enemata will enable us with more or less accuracy to decide the locality of an intestinal obstruction. If one pint of fluid is retained, the difficulty is in the rectum. If two or three are retained, it is at or in the sigmoid flexure. A still larger quantity indicates the colon as the seat of the trouble.

In one case in which the obstruction was at the upper part of the ascending colon, nine pints of fluid were introduced.

The most favorable position of the body for the retention of large injections is upon the knees, with the head and shoulders depressed. 98° Fah. is the most acceptable temperature for the fluid, which should be slowly introduced.

HEMORRHOIDS (PILES.)

PROF. N. R. SMITH, M. D., BALTIMORE.

According to this distinguished surgeon, if the disease is recent, and the causes manifest, there is but little difficulty. Commence with the administration of a saline aperient. Then, every other day, give sulphur, a heaping teaspoonful, in syrup or milk. Should this be inactive, give the following:

382. ℞. Sulphuris lot., ℥j.
Fol. sennæ pulv., ℥j.
Ol. fœnic, gtt. xx. M. ut f. pulv.

Give a heaping teaspoonful every other night.

The parts must be bathed three or four times a day with cold water, and especially after stool.

As the indulgence of the appetite in every variety of rich and unwholesome food will have been, in most cases, the principal cause, the patient must be restricted to a simple diet. Let him take animal food but once a day, in small quantity, and without condiments. Boiled onions as an article of food are productive of soft and easy passages. Stewed fruits may be used as a dessert. The patient may exercise moderately on foot, but when at rest had better assume the recumbent, rather than the sitting, posture.

This treatment will be sure to relieve incipient cases; but, if not, apply the following unguent:

383. ℞. Ung. cetacei, ℥ ss.
Pulv. gallæ,
Pulv. opii, āā ʒ ss. M.

Apply externally, and introduce within the sphincter, a small quantity twice a day.

The following suppositories are very efficient:

384. ℞. Butyr. cocoæ, q. s.
Tannici acidi, ℥ ss.
Opii pulveris, ☉ ss. M.

Divide into ten suppositories.

Insert one, morning and night, completely within the sphincter.

But in those cases in which the disease has persisted for some time, the tumors large, inflamed, and irritable, disposed to protrude with spasmodic force, and are returned with difficulty, more active measures are required. If the bowels are costive, a saline aperient must be given, and an emollient enema, to secure its prompt action.

If the tumors are protruded, and strangulated, causing great distress, they must be at once returned, without waiting for the action of medicine. To effect this, apply, for a few moments, cold water or crushed ice, to repel the blood with which they are engorged. Then, compressing the whole mass with the fingers of both hands, if necessary, press them up within the sphincter. To resist the expulsive efforts which will be provoked, keep up pressure for a few minutes on the anus with the fingers, or better, with a small sponge dipped in ice-water. This pressure our author has sometimes kept up for hours, with a perineal bandage attached before and behind to a split bandage

passed over the shoulders. The use of chloroform will sometimes greatly facilitate the reduction.

When the parts are highly inflamed and productive of symptomatic fever, free venesection is demanded. Leeches may also be applied to the verge of the anus, in aid of the lancet. Freezing the part by the spraying apparatus is recommended by some, but is of questionable value. There are many astringent applications which are employed by surgeons in these cases, either in the form of lotion or unguent, such as the acetat. plumb., acid. gallic., the persulph. ferri, etc.

In most cases of recent origin, the above means will effect a cure, and prudent living will obviate a return.

DR. ROCHARD, OF PARIS

This practitioner is of opinion that surgical interference should be more and more restrained in hemorrhoids. Very often simple hygienic treatment, conjoined with a suitable regimen, relieves these patients of their infirmities. He has cured a considerable number of such persons by simply advising them to go to stool only in the evening before going to bed, after a cold enema for the purpose of facilitating defecation. After perseverance, defecation takes place regularly, constipation ceases, the hemorrhoidal flux stops, turgescence and procidence no longer occur, and the hemorrhoidal tumor diminishing in size and consistence, the normal order of things is re-established.

PROF. D. HAYES AGNEW, M. D., PHILADELPHIA.

385. ℞. Tincturæ krameriæ, f. ℥ j.
Mucilaginis ulmi. f. ℥ ij. M.

For two injections; one to be thrown up morning and night, in ulcerated hemorrhoids.

386. ℞. Zinci sulphatis, gr. iv.
Aquæ carbolici, f. ℥ ij. M.

For a wash in external hemorrhoids.

PROF. FORDYCE BARKER, M. D., NEW YORK.

The general prejudice against aloes in piles does not apply, according to this writer, to their occurrence in pregnant women. A frequent prescription with him is:

387. ℞. Pulveris aloës socotrinæ,
Saponis castiliensis, āā ℈j.
Extracti hyoscyami, ʒss.
Pulveris ipecacuanhæ, gr. v. M.
To make twenty gills. One morning and evening.

When tumors descend they should be replaced, and the following applied twice daily:

388. ℞. Unguenti gallæ compositi, ʒj.
Extracti opii aquosi, ℈j.
Liquoris ferri persulphatis, f.ʒj. M.

Dr. BARKER considers castor oil one of the most irritating laxatives to hemorrhoids. He states in reference to *aloes*, that OPPOLZER was quite famous in the treatment of piles, and yet his favorite prescriptions contained aloes. When the patient was troubled with constipation, the aloes was associated with quinine; without constipation, with sulphate of iron. For bleeding piles he used:

389. ℞. Ferri sulphatis, ℈j.
Extracti aloës aquosi, ʒj.
Extracti taraxaci, q. s. M.
Make sixty pills. One morning and evening, and increase to three a day if necessary.

WILLIAM ALLINGHAM, F. R. S., LONDON.

The bowels should be kept soluble with the following:

390. ℞. Liquoris magnesiæ carbonatis, ʒss.
Potassii bicarbonatis, ℈j.
Tincturæ sennæ, f.ʒij.
Spiritûs ætheris nitrosi, f.ʒss.
Aquam, ad f.ʒij. M.
To be taken every morning, fasting.

The parts to be smeared with

391. ℞. Extracti belladonnæ.
Extracti opii, āā ʒss. M.
Followed by a warm poultice, if there is much swelling.

In *internal bleeding piles*, Mr. ALLINGHAM strongly recommends the curative powers of persulphate of iron. This may be applied in the fluid form, as:

392. ℞. Ferri persulphatis, ℈j.
Glycerinæ.
Aquæ, āā f℥ss. M.

Or as an ointment:

393. ℞. Ferri persulphatis, ℥ss-j.
Unguenti cetacei, ℥j. M.

This, if carefully applied, causes no pain.

PROF. GREENSVILLE DOWELL, M. D., TEXAS.

394. ℞. Plumbi acetatis, ℥j.
Morphiæ sulphatis, gr. ij.
Argenti nitratis, ℈j.
Cerati simplicis, ℥j-ij. M.

Apply a small portion at night, after bathing, and replace the piles. A very successful formula.

PROF. G. T. ELLIOT, M. D., NEW YORK.

395. ℞. Magnesiæ sulphatis,
Magnesiæ carbonatis,
Sulphuris precipitati,
Sacchari lactis, āā ℥ss.
Pulveris anisi, ℥ij. M.

One or two teaspoonfuls at bedtime. An excellent saline laxative in hemorrhoids.

PROF. ROBERTS BARTHOLOW, CINCINNATI.

396. ℞. Pulveris aluminis, ℥ij.
Pulveris camphoræ.
Pulveris opii, āā ℥j.
Unguenti, ℥j. M.

Apply to protruding, bleeding and painful piles.

English authorities advise, in addition to the local treatment, the patient to take internally a drachm of the confection of black pepper twice daily.

The following formulæ are applicable to various complications with hemorrhoids:

397. ℞. Aluminii et potassii sulphatis, ℈ij.
Fresh and well-washed butter, ℥j.

Dissolve the sulphate of aluminium and potassium in a little water, and incorporate it with the butter. Grease the hemorrhoidal tumors with this ointment morning and evening.

398. ℞. Gallæ pulveris, ℈ iv.
Unguenti benzoini ℥ j. M.

Useful in hemorrhoids which bleed easily. When the tumors are painful, a half drachm of powdered opium may be added to the ointment.

399. ℞. Acidi tannici, ℥ ss.
Unguenti benzoini, ℈ ij.
Ceræ albæ, gr. vij.
Butyri cocoæ, ℈ iv. M.

Divide into ten suppositories for hemorrhoidal hemorrhages.

400. ℞. Extracti krameriæ, gr. vij.
Morphiæ muriatis, ℥ ss.
Stearinæ, ℈ ij. M.

For one suppository in painful hemorrhoids.

401. ℞. Extracti opii.
Extracti stramonii, āā gr. iss–iij.
Butyri cocoæ, ℥ ij. M.

Divide into two suppositories. One to be introduced into the rectum at bed-time, to relieve the pain caused by hemorrhoids. Oily enemata and rest.

402. ℞. Antimonii et potassii tartratis, gr. ¼–ij.
Butyri cocoæ, ℈ iv. M.

For one suppository, to recall the hemorrhoidal flux. Aromatic fumigations and warm hip-baths should assist the treatment.

403. ℞. Pulveris iodoformi, gr. xx.
Butyri cocoæ, ℥ j. M.

Make six suppositories. Excellent in tenesmus from painful hemorrhoids.

RÉSUMÉ OF REMEDIES.

Aloes, formerly thought irritating, are now highly recommended by Professors BARKER and OPPOLZER. (See page 313.)

Alumen. A piece of alum made into a smooth suppository will sometimes be efficient in bleeding piles. Solutions and ointments containing it are also useful.

Aqua. To relieve the heat and itching of blind piles, bathing with cold water, and enemata of it, are much esteemed.

Argenti Nitras is used by Professor DOWELL (F. 394.) When the piles are protruded, inflamed and tender, the gentle application of the solid nitrate often proves highly beneficial.

Belladonna in ointment is a soothing application:

404. ℞. Extracti belladonnæ, ℥ j.
Unguenti spermaceti, ℥ j. M.

For local use.

Bismuth. The subnitrate in powder, or the *liquor bismuthi* (B. Ph.) for an injection, has been very highly extolled.

Carbolicum Acidum. The hypodermic injection of carbolic acid is the secret of a somewhat famous so-called "immediate" pile cure. The proportions are:

405. ℞. Acidi carbolici crystal.,
Olei olivæ, partes equales.
For hypodermic use.

Dr. A. J. Roe (*Michigan Medical News*, February, 1878,) says the following formula if used with care, causes little or no pain in any case.

406. ℞. Acidi carbolici (Calvert's No. 1,) ℥ ss.
Iodoform, grs. xxx.
Balsam Peru, ʒ i.
Camporated phenol, ʒ iii. M.
Inject 2 to 6 drops, according to size of tumor. Inject but one or two tumors at once.

When the piles are internal, and not readily brought down, a Sims' speculum is employed to uncover them. The operator generally takes only one pile at a time, always selecting the uppermost first, and injects into its interior from four to six drops of the carbolized oil, or rather the oleized carbolic acid. The injection turns the pile white, probably coagulates the blood in its vessels, and results in its shrinking away without the inflammation being severe enough at any one time, as a general thing, to prevent the patient from attending to his business. The well-known power of carbolic acid to act as a local anæsthetic, antiphlogistic and anti-suppurative favors the progress. When the irritation of the first injection has measurably subsided, another pile is attacked in the same way; and as the patient cannot see the syringe, he supposes that he has not been subjected to any "operation," which is a great satisfaction to him. Dr. J. M. Matthews, of Louisville, (*Trans. Ky. State Med. Soc.*, 1878,) gives the following rules: 1. Use the acid only in the smallest tumors. 2. Should it be used in a large tumor, inject once only in one portion, and wait several days, and then inject another portion. 3. Use the smallest amount possible in injecting, say one to three drops of the mixture of sweet oil and carbolic acid, equal parts, or a stronger solution.

Copaiba. In doses of gtt. x–xv, in convulsions, thrice daily, Prof. Gross says no other internal remedy will prove so efficient as this, in the milder cases of the malady, and after the secretions are regulated. Its mode of action is unknown.

Creosotum in ointment is a local application.

Cubeba. In chronic hemorrhoids, cubebs have been employed with asserted advantage.

Ergota. Dr. G. W. Semple, of St. Louis, has cured some obstinate cases of piles by injecting into the rectum, after every discharge, the following enema:

407. ℞. Extracti ergotæ fluidi, f.℥ss.
Aquæ, f.℥ss. M.
For one enema.

The ergot has been injected into the pile by means of a hypodermic syringe with alleged success. *Ergotin* in suppositories, gr. ¼, night and morning, is often of great service in bleeding piles.

Ferri Perchloridi Tinctura has been injected by a hypodermic syringe into the pile, gtt. x–xx at a time. The operation is efficient, but painful.

Ferri Persulphas is an admirable styptic applied in the form of an ointment. (F. 392, 393.)

Galla. Ointment of galls is an old and popular remedy:

408. ℞. Pulv. gallæ, ℥ij.
Pulv. opii, gr. x.
Adipis, ℥j. M.
For an ointment.

Or:

409. ℞. Unguenti gallæ comp.,
Extracti belladonnæ, āā partes equal. M.
Bathe the parts with hot water rapidly. (YOUNG.)

Glycerina. Dr. DAVID YOUNG, of Florence, in the *Practitioner*, January, 1878, reports five cases in which permanent benefit followed the internal administration of glycerine in from two to three-drachm doses in water, night and morning.

Hamamelis. The witch hazel is singularly useful in piles, both to check the bleeding and heal the diseased veins. It is employed both as lotion and injection, and also should be taken internally, (mij of the tincture three or four times a day, larger doses producing severe headache.) Dr. EDWARD R. MAYER states that the continued use of this substance in small doses (gtt. ij–iv of the concentrated tincture) will frequently cause the largest hemorrhoids to contract and disappear. When there is much infiltration of the parts, the local use of the decoction or of an ointment prepared from the extract of the plant will add much to the treatment. (*Hints on Specific Medication*, 1876.)

Hydrargyrum. Calomel ointment, or dusting with calomel in the acute stage, is a soothing application.

Iodoformum, in ointment, is efficient to relieve the local distress.

Krameria is used by Prof. AGNEW, (F. 385,) and others. It has a specifically excellent effect in rectal diseases.

Magnesia is an irritant to piles, and should not be used as a laxative when they are present.

Manna. Dr. A. E. HULL, of New York, has derived great advantage in internal piles from the following:

410. ℞. Mannæ, ℥ iij.
Aquæ bullientis, q. s.

To dissolve to the consistency of cream. Then add

Hydrargyri sulphureti nigri, ℥ ij.
Rhei pulveris, q. s. M.

Make a mass; divide into small suppositories; one, anointed with olive oil, every night.

Nitricum Acidum as a topical application has been often used, but is excruciatingly painful.

Opium in some form is added to many pile ointments as an anodyne. In the severe spasm and tenesmus which occasionally occur after operation, its free administration is imperative.

Piper Nigrum in considerable quantities will relieve piles. "Ward's paste," *confectio piperis nigri*, is popular in England.

Pix Nigra. Dr. R. A. Vance, of Ohio, recommends:

411. ℞. Picis nigræ, ℥ j
Magnesiæ, q. s. M.

For 30 pills. Two after each meal.

In quite a number of cases these pills, in connection with other measures of a hygienic character, produced marked relief where the suffering had previously been almost unendurable.

Common pitch ointment is one of the best applications in the chronic stage.

Plumbi Acetas is a valuable astringent. (F. 394.) In solution, or as Goulard's extract, diluted, it soothes the irritation. When there is pain in the back, due to piles, the application of lead plaster will often relieve it.

Podophyllin. Small doses of podophyllin, gr. $\frac{1}{16}$, twice daily, have been recommended by Dr. A. Hazlewood, of Michigan. (*Michigan Medical News*, June, 1878.)

Potassii Bromidum, one part to five glycerine, has proved useful as a local application to ease the pain and spasms of hemorrhoids.

Rhamnus Frangula. Dr. J. S. Unzicker, of Cincinnati, says this remedy in the cure of hemorrhoids certainly stands unrivaled, and holds the same rank in chronic piles as potassii tartras does in those of a more acute or inflammatory form. Both, when given in their proper place, quickly remove all portal congestion, constipation, and all that disagreeable feeling connected with this complaint. The frangula ought to be given at bedtime, either as an infusion or decoction—℥ j-ij to four ounces of water—or from one to two teaspoonfuls of Squibb's fluid extract. Thus given, it acts more mildly and with less annoyance to the patient than when given in the morning. If, however, the above dose should produce more than one or two soft passages, the dose must be reduced, and purging avoided, as the latter would only aggravate the trouble and do no good.

Rheum is one of the most appropriate laxatives in this complaint. About gr. x may be chewed nightly.

Ricini Oleum is an irritant of the rectal vessels, and should not be used.

Senna is an appropriate laxative.

Stramonium, in the form of cataplasm, is often employed with advantage in inflamed hemorrhoids.

Sulphur is a popular remedy:

412. ℞. Sulphuris,
Mellis, āā parts equal. M.
For an ointment in internal hemorrhoids.

It is also an excellent laxative for habitual use.

413. ℞. Sulphuris loti, gr. v–x.
Confectionis sennæ, ℥j. M.
This amount every morning.

Tubacum is often added with great advantage to ointments for painful hemorrhoids. Ordinary snuff may be used, j–ij to ℥j of ointment.

Tannicum Acidum is a more powerful astringent than gallic acid.

414. ℞. Acidi tannici, gr. xx–xxx.
Aquæ frigidæ, f.℥vj. M.
To be injected into the rectum for bleeding piles.

Teucrium Scordium. The powdered leaf of the wild germander is asserted by Dr. LEBEL, of Paris, to exercise a specific influence on hemorrhoids, relieving the pain, irritation, and especially the pruritus. Dr. JOHN H. BRINTON, of Philadelphia, has found it to soothe the latter in a marked degree. The dose is gr. xv–xx of the powder thrice daily in water.

Ulmus. In the *Medical Herald*, 1879, Dr. E. J. KEMPFF observes that suppositories made of powdered slippery-elm bark and warm water, (sufficient of the latter to make a sticky mass,) medicated with fluid extract of belladonna or ergot, recommended themselves in rectal diseases and for piles.

Verbascum Thapsus. The mullein, as a remedy for painful hemorrhoids, is well spoken of by Dr. EDWARD R. MAYER, and others. It is administered both by enema and the mouth. The patient drinks thrice daily a wineglassful of the infusion, and takes an injection of the same on rising in the morning. The infusion is demulcent, and is a mild and agreeable laxative. The fluid extract, in drachm doses, has the same properties.

Zinci Valerianas, in doses of gr. j–iss, internally, has been found singularly efficient by Dr. C. DEADERICK. (*Nashville Journal of Medicine and Surgery*, March, 1879.)

FISSURE OF THE ANUS.

WILLIAM ALLINGHAM, F. R. S., LONDON.

This surgeon states that he has performed many cures without other treatment than the following ointment:

415. ℞.	Hydrargyri subchloridi,		gr. iv.	
	Pulveris opii,			
	Extract belladonnæ,	āā	gr. ij.	
	Unguenti sambuci,		ʒj.	M.

To be applied frequently; the bowels to be kept soluble.

An occasional *light* touch with the nitrate of silver is useful.

PROF. VELPEAU, PARIS.

416. ℞.	Unguenti hydrargyri,		℈ ijss.	
	Unguenti benzoini,			
	Ceræ albæ,	āā	℈j.	
	Butyri cocoæ,		℈iv.	M.

Divide into twelve *suppositories*. These are particularly useful in venereal fissures.

M. TARNIER, PARIS.

This surgeon takes small pledgets of cotton-wool, sprinkles them with powdered iodoform, and introduces them into immediate proximity to the fissure. They produce a rapid and gratifying effect.

DR. ROLLET, PARIS.

417. ℞.	Glycerinæ,		f.ʒss.	
	Amyli,		ʒij.	
	Zinci oxidi,		ʒj.	M.

Mix the glycerine and starch, warm gently in a porcelain capsule, stirring until the mass jellifies, and then add the oxide of zinc.

This glycerite is particularly advised by Dr. ROLLET in the fissures of the anus which exist in persons who have had chancres. These fissures cicatrize very slowly, because of the constant contact of the fæcal matter. Hence they should be cauterized from time to time with nitrate of silver, and afterwards dressed with the glycerite of oxide of zinc.

418. ℞. Acidi tannici, gr. xv.
Glycerinæ, f.℥ss. M.

A tent immersed in this solution is to be introduced, morning and evening, into the rectum.

As the glyceritum acidi tannici of the *United States Pharmacopœia* is four times the strength of this solution, it may be ordered in its place, diluted with three parts of glycerine.

419. ℞. Hydrargyri choloridi mitis, gr. iv.
Adipis, ʒj. M.

This is a useful pomade in fissures of the anus of but slight extent. The affected part is to be washed with warm water, and the ointment lightly applied without friction.

Dr. CARRERE, of Ghent, applies carron oil, several times daily, and claims to cure in eight or ten days. (*An. de la Soc. de Med. de Gand.* 1878.)

DR. HENRY HARTSHORNE, OF PHILADELPHIA.

This writer believes that most cases, even of long standing, may be cured without an operation. He has especial confidence in *collodion*, to which one-fiftieth of glycerine has been added to lessen its constricting effect. This may be painted upon the part with a camel's-hair pencil; it makes an excellent artificial cuticle. When the case is obstinate, the surface of the fissure should be touched lightly with nitrate of silver or sulphate of copper. Suppositories of opium or belladonna may be introduced after defecation, to relieve pain. Forced dilatation of the sphincter by the two thumbs of the operator, as recommended by Dr. VAN BUREN, may be resorted to if these means fail.

Various surgeons have highly recommended *rhatany*, *krameria*, in the form of tincture, or an ointment made of the extract with lard (ʒj–ij to ℥j) as a very valuable application both in fissured and prolapsed anus.

Dr. CREQUY, of Paris, treats fissure of the anus by chloral. His procedure is as follows: Charpie, soaked in a two per cent. solution of chloral, is inserted just within the anus, daily attention being of course duly paid to the regularity of the bowels. In the two cases recorded as having been so treated, a cure was effected within a fortnight.

After the operation for anal fissure by dilatation, it is the custom with most surgeons to touch the sides of the fissure with a caustic, in order to bring about healthy granulations. To effect this, probably the most effective is strong *nitric acid*. As the application is necessarily very painful, the patient should be placed under ether. Chloroform should not be used, as it is said there is a peculiar intolerance of it in this complaint.

Dr. ERSKINE MASON, of New York, believes (*Medical Record*, Nov., 1877,) that in young subjects, and where the fissure is of recent origin, we can in many cases succeed in curing them without an operation. The treatment is to keep the bowels in a soluble condition, and make use of some astringent and sedative application. A very common prescription for this purpose contains zinc or stramonium ointment in combination with belladonna or opium. This plan of treatment is often followed by complete relief.

There are many persons who are remarkably timid when anything like operative interference is suggested, and we can relieve a goodly number of such cases by penciling the fissure to its bottom with a fine point of nitrate of silver, or with nitric acid. These applications relieve the pain, because they destroy the little filament of nerve which is exposed in the fissure.

In those cases in which the fissure has attained some size, we can always with the probe find one spot which is excessively tender, and when the nerve exposed at that point is destroyed by the use of any cautery, or by stretching the sphincter, the patient will be relieved.

Dr. HAMON states in *Le Practicien*, 1879, that instead of employing forcible dilatation, he applies to the fissure, with a camel's-hair brush, a solution consisting of one part of chloroform to two parts of alcohol. Two or three applications, at intervals of two or three days, usually suffice to effect a cure. The first application is very painful, but each subsequent one becomes less so.

FISTULA OF THE ANUS.

The most successful treatment of anal fistula without operation is by means of the *elastic ligature*. Its advantages are: 1. There is little or no pain in connection with the operation. 2. There is no hemorrhage. 3. Recovery is rapid. 4. The patient is not confined to bed, but may go out at once if he like. 5. The most delicate person may be operated upon. 6. Anæsthetics are not required. 7. There is very little suppuration. 8. And lastly, even when the operation has been begun with the bistoury, it may be bound up with the elastic ligature. Once the ligature is in place, the two ends, first passed through a little ring of lead, are put on the stretch. At the maximum of tension, the ring is crushed with a stout pair of pincers, in such wise that the fistula is included, strangulated in fact, within an elastic noose, and the tension maintained until the ligature cuts through the parts and is discharged.

Another method is by *iodine injections*. This plan has been known for a number of years, but it is hardly mentioned by surgical authors. It has, however, been successful in a number of cases, when adopted with proper precautions. Dr. E. C. HUSE, of Illinois, who reports very satisfactory results (*Medical Record*, March, 1871,) recommends that the iodine should be employed in the form of a *saturated ethereal* tincture. Its advantages over the officinal or alcholic tincture are not only that it is *stronger*, and thereby excites inflammatory adhesion in the walls of the tube, but the ether evaporates almost momentarily, and a pure coating of iodine is left along the fistulous track, which doubtless encourages absorption. The instrument used is an ordinary hypodermic syringe, with small silver canula, which may be readily bent to correspond with the direction of the sinus.

The mode of operation is as follows: After exploring the fistula with a *very small* probe (the ordinary probe of the pocket-case is far too large,) after determining its course and extent, the patient is to be placed in a good light and a glass rectal speculum introduced, with its fenestrum opposite the internal orifice of the fistula. The canula is now bent to the required curvature and introduced, when the syringe, filled with tepid water, is screwed on, and the surface thoroughly cleansed of all extraneous matter. This step is not only essential, but serves to allay timidity or dread of the subsequent operation.

Next, by pressure, the fistula in its whole extent should be dried out, and the iodine will thus come in direct contact with its walls. Introduce now into the speculum a quantity of carded cotton. This will absorb any of the iodine which might otherwise be injected *through* and injure the mucous membrane, and by its characteristic stain will serve to show the completeness both of the fistula and of the operation.

The canula may now be re-inserted, and the injection made. It should be done *slowly*, and at the same time the canula gradually withdrawn. Every part of the surface will thereby be reached.

The operation, which is not very painful, should be premised with a cathartic and followed with a full anodyne, as ordinarily with the time-honored knife method. The patient need not be confined to his bed or room, even for an hour.

PROLAPSUS OF THE ANUS.

PROF. JOHN VON CLEVELAND, GALWAY.

420. ℞. Liquoris bismuthi et ammoniæ citratis (Br.), f.℥ss.
Amyli solutionis, f.℥ij. M.

Use as an enema in prolapsus ani. It should be given after the patient is in bed, and the bowel returned.

Another:

421. ℞. Tincturæ ferri chloridi, f.℥j.
Aquæ destillatæ, f.℥j. M.

To be divided into five injections. One to be thrown up the rectum three times daily.

PROF. LANGENBECK, OF BERLIN.

This eminent surgeon states that he has treated prolapsus ani "with astonishing success" by hypodermic injections of a solution of ergotin (five to fifteen parts to one hundred of distilled water.) He replaces the bowel, and inserting the point of the syringe about three centimetres in depth in the cellular tissue, throws in from one to two grains of ergotin. This should be repeated every three or four days

for three or four weeks, any hard fæcal masses in the bowels being first removed by a simple injection.

Much may be done in prolapsed anus by mechanical measures, as wearing a pad and T bandage; by using an air-dilated gum-elastic pessary; by avoiding low stools and straining during defecation, etc.

Prof. STROMEYER says many cases may be relieved by warm baths and moderate doses of magnesia.

ANUS, PRURITUS OF.

WILLIAM ALLINGHAM, F. R. S., LONDON.

The patient should renounce coffee, spirits, condiments and rich food. The parts should be washed at night with warm water and yellow soap. The bowels should be kept soluble with gentle salines. On retiring, the following ointment should be applied freely:

422. ℞.	Hydrargyri chloridi mitis,	gr. x.	
	Unguenti sambuci,	ʒj.	M.

Or this lotion:

423. ℞.	Sodii boratis,	℈ ij.	
	Morphiæ muriatis,	gr. xvj.	
	Acidi hydrocyanici diluti,	f. ʒ ss.	
	Glycerinæ,	f. ʒ ij.	
	Aquam,	ad f. ʒ viij.	M.

Other surgeons employ:

424. ℞.	Aluminæ nitratis,	gr. vj.	
	Aquæ destillatæ,	f. ʒ j.	M.
For a lotion.			
425. ℞.	Tincturæ digitalis,	f. ʒ iij.	
	Aquæ,	f. ʒ viij.	M.
For a lotion.			

The *unguentum opii*, or the *unguentum gallæ cum opio*, or a solution of carbolic acid in lime-water, are soothing local applications.

DR. JOHN H. PACKARD, OF PHILADELPHIA.

This surgeon (*Medical and Surgical Reporter*, March, 1880,) states that he had a case of this kind which baffled all his endeavors, until he used the following prescription:

426. ℞. Camphoræ,
Chloral hyd., āā ʒss.
Ung. petrolei, ʒvij. M.
For local use.

This gave immediate relief, and a few applications only were needed; the itching was permanently allayed.

Repeated experiences with it since that time have satisfied him of its efficiency in very many of these cases.

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XI. LESIONS OF THE ORGANS OF URINATION.

Cystitis (Acute and Chronic)—Enuresis (Incontinence of Urine)—Irritable Bladder (Dysuria, Strangury)—Lithiasis (Stone, Calculous Diseases, Gravel)—Prostatic Diseases.

CYSTITIS.

PROFESSOR GEORGE JOHNSON, F. R. S., LONDON.

The value of an exclusive *milk diet* in cystitis has recently been spoken of by this writer. (*Lancet*, December, 1876.) In acute cases and in many chronic cases this brings prompt relief to the symptoms, and in a short time a cure. The urine is largely diluted and rendered mild and unirritating, and thus the coats of the bladder revert to their normal condition. The milk may be taken cold or tepid, and not more than a pint at a time, lest a large mass of curd, difficult of digestion, form and collect in the stomach. Some adults will take as much as a gallon in the twenty-four hours. With some persons the milk is found to agree better after it has been boiled, and then taken either cold or tepid. If the milk be rich in cream, and if the cream disagree, causing heartburn, headache, diarrhœa, or other symptoms of dyspepsia, the cream may be partially removed by skimming. One reason amongst others for giving the milk, as a rule, unskimmed—that is, with the cream—is that constipation, which is one of the most frequent and troublesome results of an exclusively milk diet, is to some extent obviated by the cream in the unskimmed milk. As a rule, it is unnecessary, and therefore undesirable, to add bread or any other form of farinaceous food to the milk, which in itself contains all the elements required for the nutrition of the body. When the vesical irritation and catarrh have passed away, and the urine has regained its natural character, solid food may be combined with the milk, and thus a gradual return may be made to the ordinary diet, while the effect upon the urine and the bladder is carefully watched.

Dr. GEO. N. MONETTE, New Orleans, (*American Practitioner*, 1878,) reports very favorably of this method. He gives the following prescription:

427. ℞.	Quiniæ hypophosphitis,	℥ ss.	
	Ferri pyrophosphatis,	℥ ss.	
	Pulv. ergotini, (or Bonjean's,)	gr. xv.	
	Ext. nucis vomicæ,	gr. vii.	M.

Make pil. No. xv. One to be taken every four hours.

The above, in addition to the skimmed milk, has invariably been successful in a comparatively brief period of time.

PROFESSOR EDLEFSEN.

This writer (in the *Deutsches Archiv für Klinische Medicin*, December, 1876,) teaches that in cystitis an instrument should never be introduced into the bladder unless absolutely necessary. Few cases, he believes, will resist the proper administration of *copaiba* and *oil of turpentine*. Of the latter he gives ♏x at a dose. He also highly extols *chlorate of potash*.

428. ℞.	Potassii chloratis,	℥ ss.	
	Aquæ,	℥ j.	M.

A tablespoonful every two or three hours.

Syrups and sweets should never be added. Prof. EDLEFSEN first employed chlorate of potash in cases where turpentine failed or was contra-indicated, and was surprised at the rapid cures effected. In one case which lasted two years, and in which turpentine did no good, after employing potass. chlor., for eight days, there was hardly any sediment in the urine, and it was quite acid. On the other hand, some cases which did not improve under potass. chlor. were cured by oil of turpentine. He thinks this remedy will supply a place long vacant, and hopes practitioners will fully test it. When chlorate of potash is used, as a rule the pus in the urine rapidly diminishes, the subjective symptoms disappear, or are mitigated, and the acid reaction of the urine returns, but not so rapidly as after the employment of oil of turpentine.

DR. NIEMEYER.

Acute Catarrhal Cystitis.—In most cases of this complaint, according

to this author, hot pultices upon the abdomen and general warm baths, suffice to relieve the symptoms and to bring about a favorable termination. The patient should drink Seltzer, Wildruger, Fachinger, or Galinauer waters, or soda-water, or lime-water mixed with equal parts of milk. The semina lycopodii have a peculiar reputation as a remedy.

429. ℞. Lycopodii seminum, ℥ ss.
Mellis despumati, ʒ iss. M.
Make an electuary. A teaspoonful every two hours.

Camphor is valuable where the complaint arises from the abuse of cantharides. Dover's powders, in small doses at bedtime, is a most efficient remedy against pain and vesical tenesmus. The more the pain abates, and the more copious the admixture of mucus and pus in the urine, so much the more urgently are the astringents indicated. The astringent most commonly employed is a decoction of the folia uva ursi, (℥ ss to ℥ vj, a tablespoonful every two hours.) The continued use of *tannin* is still more efficacious.

PROFESSOR D. HAYES AGNEW, M. D., OF PHILADELPHIA.

In the chronic stage of this disease, much advantage may be derived from the employment of rectal suppositories, as:

430. ℞. Extracti belladonnæ, gr. ss.
Extracti hyoscyami, gr. j.
Butyri cocoæ, q. s. M.
For one suppository. Use one several times a day.

For internal use, the following:

431. ℞. Sodii bicarbonatis, gr. v.
Infusi uvæ ursi, f ℥ ss. M.
This amount three or four times a day.

The bladder may be washed out daily with tepid water, by means of a double catheter, and then, if necessary, a weak solution of the permanganate of potassa injected.

DRS. VAN BUREN AND KEYES.

These writers state that the treatment of acute cystitis from any cause is always the same. It rests firmly on the tripod of: 1. Rest

in bed, with elevation of the pelvis. 2. Alkaline diuretics. 3. Anodynes to relieve pain and tenesmus. To these may be added local application of heat. Asparagus, salt, coffee and lemon juice, should be avoided. Of the alkalies, citrate of potash, gr. xx–xxx three or four times a day, is perhaps the best. It may be alternated with bicarbonate of soda, acetate of potash, or liquor potassæ. The alkali may be given in carbonated water or flaxseed tea. Buchu may be combined in infusion with the latter. The rectum should be kept empty by the daily use of a hot enema.

DR. A. W. ROGERS, OF NEW JERSEY.

432. ℞. Spiritûs ætheris nitrici dulcis,
Tinct. opii camphoratæ, āā f.℥j. M.

Take half a teaspoonful every hour; said by this writer (*Medical and Surgical Reporter*, Jan., 1873,) to relieve most cases of dysuria and mild cystitis.

SIR HENRY THOMPSON, OF LONDON.*

Chronic Cystitis is usually owing to an inability of the bladder to empty its contents. The first step, therefore, is to take care that the bladder is emptied by a catheter once, twice or thrice a day. Whenever this cannot be done completely, the bladder must be washed out. When all acute symptoms have subsided, tepid water (not more than f.℥iss–ij at once) may be employed, retained for thirty or forty seconds, and repeated once or twice a day; or the following medicated injections may be resorted to:

Argenti nitras, gr. j. to f.℥iv of warm water, to commence with, and going up to gr. ss or gr. j, at the outside, to the ounce. *Carbolic acid*, ♏j–ij to f.℥iv of warm water, when the urine is offensive.

Nitricum acidum dilutum, ♏j–ij to f.℥j of warm water. *Plumbi acetas*, gr. j to f.℥iv of warm water once a day, when the urine is alkaline and depositing phosphates. *Potassii chloras*, gr. iv–v to f.℥j of warm water, when the urine is putrid. *Sodii biboras* is recommended by Sir HENRY THOMPSON in the following formula:

433. ℞. Sodii biboratis, ℥j.
Glycerinæ,
Aquæ, āā f.℥ij. M.

Add two or three teaspoonfuls to f.℥iv of warm water.

**Diseases of the Urinary Organs.*

In administering injections into the bladder the following rule given by Sir HENRY THOMPSON should be carefully observed: A flexible catheter being first introduced into the bladder, "have ready a five-ounce india-rubber bottle with a brass nozzle and stop-cock, the nozzle long and tapering, so as to fit a catheter of any size between Nos. 5 and 10, filled with warm water, say at 100° Fah.; attach the nozzle gently to the catheter and then throw in slowly a fourth of the contents; let that run out; it will be thick and dirty, no doubt; then inject another fourth, which will be less so; again another, which will return clearer than the preceding; and the fourth portion will probably come away nearly clear. Now these four separate washings of an ounce each will have been really more efficient than two washings of four ounces each, and you will have reduced the amount of instrumental irritation to a minimum. Never, under any circumstance, throw in more than two ounces at a time, and even this quantity, for efficient washing, is better avoided." Dr. BRAXTON HICKS advises that the point of the catheter, in giving an injection, should not pass far beyond the neck of the bladder, otherwise, if it touches the sides or back, it occasions great distress.

For spasm and pain a suppository of morphiæ, gr. ½–j, is often of the greatest service. Counter-irritants are not of much service. Perhaps the best is a hot linseed poultice, well sprinkled with strong flour of mustard, above the pubes. Hot fomentations and hip-baths alleviate pain materially.

Of the various infusions and decoctions said to exercise a beneficial influence in cystitis, Sir HENRY names the following in the order of their value for the cases one commonly meets with: Buchu, Triticum repens, Alchimella arvensis, Pareira brava, Uva ursi. Of the first, fourth and fifth, give O ss daily; of the second and third, O j; that is, of their infusions or decoctions. The Triticum repens was introduced by Sir HENRY himself, and should be prepared as follows:

434. ℞. Triticum repens (the underground stem,) ℥ ij.
Water, Oj.
Boil for a quarter of an hour. Take in four doses in the twenty-four hours.

The resins have also a certain amount of value.

435. ℞. Copaibæ, ♏v.
Mucilag. acaciæ, ℥j. M.
This amount thrice daily.

In regard to alkalies, the following old combination, said to be of incompatibles, nevertheless seems about the most valuable form in practice:

436. ℞. Liquoris potassæ, ʒ ij–ℨ ss.
Extracti hyoscyami, ℈j–iv
Syr. aurant. corticis, } Mist. acac. or aquæ, āā f.ℨ iij.
Aquæ cinnamomi, āā f.ℨ iij.

A tablespoonful in some diluent every eight hours.

Of the acids, the only ones which act on the urine are benzoic and citric acid.

437. ℞. Acidi benzoici, gr. iij
Glycerinæ, gtt. j. M.

For one pill. Ten or twelve of these must be given daily.

Lemon juice, if it agrees with the stomach, and the urine is very alkaline, may be taken in large quantity.

To allay the pain, the following anodyne solution is recommended:

438. ℞. Extracti conii,
Extracti hyoscyami, āā ʒ j.
Extracti opii aquosi, ʒ ss.
Alcoholis, f.ʒ ij.
Aquæ destill., f.ʒ xiv. M.

Add a sixth or a fourth part of this to f.ℨ iij of warm water for an injection, to remain in the bladder five minutes; two-thirds should be permitted to flow out, and the catheter withdrawn; the rest is retained in the bladder. On all occasions of washing out the bladder only two or three fluid ounces of liquor should be injected.

PROFESSOR S. D. GROSS, M. D., D. C. L., OF PHILADELPHIA.

In the early stages of the complaint the remedies are local and general bleeding, cathartics and diaphoretics, with low diet. When there is no marked biliary derangement, castor oil is the best purgative. When such is present, calomel, either alone or with jalap. After depletion and catharsis, the "antimonial and saline mixture" (F. 5) seldom fails to relieve the symptoms.

The action of these drugs may be favored by tepid drinks, warm baths and fomentations. Diuretics should be avoided. If the urine is scanty, a small quantity of nitrate of potassa or spirit of nitrous ether may be given in a demulcent fluid. Fifteen to twenty leeches

may be applied to the perinæum and verge of the anus. Dry or wet cups to the sacro-lumbar region will relieve the pain in the back. Anodynes by the rectum are very valuable, as:

439. ℞. Pulveris opii, gr. iij.
Butyri cocoæ, q. s. M.
Mix thoroughly for a suppository.

Or a drachm of laudanum in f. ʒ ij, of tepid water may be thrown up with a syringe having a long nozzle, after the lower bowel has been washed out.

Chronic cystitis, or *catarrh of the bladder*, demands an unirritant, farinaceous diet, without condiments, acids, or spirits in any form. Exposure to cold must be carefully avoided. The acrid remaining urine should be drawn off, and pain and sleeplessnes may be allayed by the following suppository:

440. ℞. Pulveris opii, gr. ij.
Pulveris camphoræ, gr. v.
Extracti belladonnæ, gr. ss.
Butyri cocoæ, q. s M.
Make one suppository.

A particularly serviceable recipe where there is a morbid irritability of the neck of the bladder is the following:

441. ℞. Uvæ ursi foliorum, ℥ iss.
Humuli foliorum, ʒ ss.
Infuse in a quart of water, in a covered vessel, for two hours, and add:
Sodii bicarbonatis, ʒ ij.
Morphiæ sulphatis, gr. ij.
Of this a wineglassful is to be taken five or six times a day.

In ordinary cases no remedy equals the balsam of copaiba, as follows:

442. ℞. Copaibæ, f. ℥ j.
Morphiæ sulphatis, gr. ij.
Pulveris acaciæ, ʒ ij.
Sacchari albi, ʒ ij.
Olei gaultheriæ, gtt. x.
Aquæ, f. ℥ vj. M.
A teaspoonful to a dessertspoonful three or four times a day.

DR. G. W. SEMPLE, OF VIRGINIA.

In the Virginia *Medical Monthly*, June, 1877, this writer records striking success in cystitis with:

443. ℞ Atropiæ sulphatis gr. j.
Acidi carbolici, gtt. xij.
Aquæ destillatæ, f.℥ viij. M.

Forty to sixty drops of this in half an ounce of water as a rectal injection, twice a day.

It uniformly and immediately arrests the frequent strangury and painful micturition, gradually checks the mucous and sanguineous discharges, and relieves the supra-pubic pain with the cystic inflammation. When the urine is alkaline, Mettauer's nitro-muriatic acid mixture is given to correct it; and when it is so acid as to irritate, the acidity is corrected by antacid remedies, of which the bicarbonate of potash, with subnitrate of bismuth, is generally preferred, because of the tonic effect of the bismuth, and its very soothing effect on the mucous surfaces of the urinary organs.

PROFESSOR ROBERT DRUITT, M. D., SCOTLAND.

444. ℞. Decocti chimaphillæ, f.℥j.
Syrupi zingiberis,
Spiritûs ætheris nitrici, āā f.℥j. M.

For a dose. Twice a day in chronic cystitis.

PROFESSOR RICORD, PARIS.

445. ℞. Argenti nitratis, gr. vij.
Aquæ destillatæ, f.℥ iijss. M.

By the aid of a sound introduced into the bladder, water is injected into this organ; this is allowed to pass out immediately, and replaced after the half of the above solution, which, in its turn, is evacuated by about a minute's sojourn. This injection is to be repeated on the third or fourth day, if necessary, in chronic cystitis.

446. ℞. Extracti belladonnæ, gr. v.
Extracti valerianæ, ℥j. M.

Divide into thirty pills. One thrice daily, in chronic cystitis, when the patient supports opium badly; also belladonna suppositories.

447. ℞. Opii pulveris, ℈ ij.
Camphoræ pulveris, gr. xv.
Saponis, ℈ vss. M.
Divide into sixty pills. One thrice daily, in acute cystitis.

DR. MALLEZ, PARIS.

448. ℞. Sodii hyposulphitis, ℈ iv.
Aquæ destillatæ, ℥ j. M.
This solution to be employed in five injections into the bladder, in chronic vesical catarrh.

449. ℞. Potassii permanganatis, ℈ ij.
Aquæ destillatæ, f. ʒ x. M.
Inject one-third of this solution into the bladder, in chronic catarrh, when the urine is purulent.

450. ℞. Tincturæ iodinii, ℈ ij.
Potassii iodidi, gr. xv.
Aquæ destillatæ, f. ʒ x. M.
Inject one-third into the bladder, on three consecutive days, in chronic cystitis, with light mucous catarrh. If this injection causes pain, use the following:

451. ℞. Tincturæ iodinii, ♏ xv.
Potassii iodidi,
Extracti belladonnæ, āā gr. xv.
Aquæ distillatæ, f. ʒ x. M.
One-third to be injected as above.

452. ℞. Potassii iodidi, ℈ iv.
Extracti hyoscyami,
Extracti conii, āā gr. v.
Butyri cocoæ, ℈ iv. M.
For one suppository. To be introduced into the rectum in engorgements and hypertrophy of the prostate.

RÉSUMÉ OF REMEDIES.

Alkalies, especially the citrates and bicarbonates, must be freely employed when the urine is acid and the organs irritated and inflamed. (F. 433, 436.)

Ammoniæ Benzoas is recommended by Dr. GARROD, where a tendency to phosphatic deposit exists.

Benzoicum Acidum is advised by Sir HENRY THOMPSON in chronic cystitis. It should be administered in the form of a pill, (gr. iij-iv, with glycerine,) and not less than gr. xxiv taken daily.

Buchu, in the form of infusion, given to the extent of half a pint daily, has proved of service in the hands of Sir HENRY THOMPSON.

Cantharides may be cautiously employed in very chronic cases. The dose is gtt. x of the tincture thrice daily.

Carbolicum Acidum, in one per cent. solution, makes a most efficient antiseptic injec-

tion. The bladder is singularly tolerant of this agent. (*British Medical Journal*, May 15th, 1880.)

Colchicum is of value in the cystitis of rheumatic and gouty subjects. It may be either given alone or in connection with pareira brava or buchu. It is indicated, according to Sir BENJAMIN BRODIE, when the urine is alkaline.

Copaiba, alone or combined with cubebs, is useful in relieving intense irritation, particularly in persons of a strumous diathesis or debilitated constitution. Sir HENRY THOMPSON states that the dose in these cases should not exceed ℥v, in mucilage, three or four times a day. (F. 435, 442.)

Cubeba, given cautiously, in small doses, (gr. x–xv, thrice daily,) is recommended by Sir BENJAMIN BRODIE as often useful in relieving the symptoms, both in primary inflammation and in that resulting from the presence of a calculus in the bladder.

Eucalyptus. Dr. BARTHOLOW states that this is the most effective remedy he has ever used in chronic catarrh of the bladder. It is a powerful diuretic, and exerts a strong local action on the vesical mucous membrane. It may be given in tincture (f. ʒj) or extract, (gr. j–℈j.)

Ferri Chloridi Tinctura has been employed, when persevered in, with advantage, by SIR BENJAMIN BRODIE, in doses of ℥viij–xv twice a day, in water or an infusion of buchu.

Lacticum Acidum is very highly spoken of by Dr. THEO. DEECKE. (*Buffalo Medical and Surgical Journal*, February, 1879.) He gives it in doses, gr. xv–xxx, by the mouth and locally, as a one per cent. injection. A few injections usually suffice. He finds it a potent antiseptic.

**Opium* is a most useful remedy. Its action is aided by the hot hip-bath, fomentations and linseed-meal poultices, sprinkled with mustard, over the hypogastric region. It may be employed in the form of a *suppository*. Mr. LISTON'S favorite combination was the following:

453. ℞. Pulveris opii, gr. ij–iv
Extracti hyoscyami, gr. x–xv. M.

This should be preferably exhibited at the hour of sleep, and usually secures a state of enviable comfort for twelve or sixteen hours. Sir HENRY THOMPSON employs a suppository of morphia, (gr. ss-j.)

Pareira Brava is recommended by Sir BENJAMIN BRODIE as useful in lessening the secretion of ropy mucus, and diminishing the inflammatory action. He gives the following formula:

454. ℞. Pareiræ bravæ radicis, ʒ ss.
Aquæ, ad Oiij. M.
Simmer over the fire until reduced to Oj. Dose—f. ʒ viij–xij daily.

Tincture of hyoscyamus may be added, and where there is a deposit of the phosphates, hydrochloric or nitric acid.

Quiniæ Sulphatis. A solution of sulphate of quinine, gr. j to aquæ f. ʒj, constitutes

one of the most useful injections for cleansing the bladder of viscid mucus. Mr. ERICHSEN says he has found none superior to it in those forms of sub-acute cystitis with muco-purulent secretions that occur from any source of vesical irritation, and that are apt to supervene during lithotrity. Mr. T. W. NUNN, of London, says in the *Lancet* that the most striking result is obtained by injecting the solution of quinine into the bladder in those cases where the urine is loaded with pus, and is *intensely offensive;* the bladder being irritable, the desire to urinate recurring every hour, or more often, for example, where the bladder only imperfectly empties itself, or when the continual use of the catheter is called for in enlarged prostate, or in atony of the organ. The following is his method of using the quinine as a bladder injection: Dissolve twenty grains of disulphate of quinine in twenty-five ounces of water by the aid of a few drops of dilute sulphuric acid or a teaspoonful of *common brown* vinegar. Of this solution inject into the bladder two or three ounces, and let it remain.

Santali Oleum, in capsules or emulsion, every few hours, is stated by Dr. WILLIAM VARIAN, of Pennsylvania, to be the most efficient agent in ordinary cystitis he has ever tried. (*Medical and Surgical Reporter*, March 27th, 1880.)

**Terebinthinæ Oleum*, in the form of hot epithems over the hypogastric region, is highly serviceable.

Triticum Repens, in decoction, is highly spoken of by Sir HENRY THOMPSON and Dr. GRAILY HEWITT. (F. 434.)

Uvæ Ursi Folia, in decoction, O ss daily. (F. 441.)

ENURESIS. INCONTINENCE OF URINE.

DR. WILLIAM A. HAMMOND, OF N. Y.

This author states (in the *Ohio Medical and Surgical Journal*, October, 1876,) that he has found the following plan of treatment so efficacious that, though there are others which are at times followed by success, he has for several years past adopted it exclusively:

(1.) Supposing the patient, as is generally the case, to be a child, the bladder should be emptied on going to bed, and then two or three times afterwards the patient should be taken up and again made to urinate.

(2.) Sleeping on the back should be prevented. The supine position is one which, of all others, increases the amount of blood in the cord, and hence augments its irritability.

(3.) The following prescription should be given for several months,

three or four at least; if stopped sooner, the affection is liable to return:

455. ℞. Zinci bromidi, ℥ss.
Ergotæ ext. fl., ℥iv. M.
Dose—Ten drops three times a day, increased five drops every month.

Thus for the first month ten drops are taken three times a day; for the second month, fifteen drops three times a day; for the third, twenty drops, and so on. It is preferably administered after meals, being less apt then to excite nausea or vomiting. Should either of those symptoms prove troublesome, the ensuing two or three doses may be somewhat smaller.

Children of from four to twelve years of age can take the foregoing quantities without disturbance of the general health, and even for adults it is not often necessary to increase them, except in the way of augmenting the dose by five drops every two weeks instead of every month.

In cases, however, where the bromide of zinc is not well borne, the bromide of iron may be substituted. It should be given in the form of a syrup, in doses beginning with five grains three times a day, gradually increased to fifteen or twenty.

456. ℞. Ferri bromidi, ℥j.
Syrupi simplicis, ℥v. M.

A teaspoonful of the syrup, made according to the above formula, contains about ten grains of the bromide of iron. The dose, therefore, to start with, is a half a teaspoonful three times a day, increased gradually, until at the end of three or four months the patient is taking a teaspoonful and a half or two teaspoonfuls of the medicine. With each dose of the bromide of iron the fluid extract of ergot should be given separately, and, like it, should be gradually increased from ten drops three times a day to a drachm as often. The two medicines cannot be kept mixed together for any length of time without the bromide of iron being decomposed and the ergot also injured.

Dr. N. BRENCHLEY recommends the following:

457. ℞. Tinct. ergotæ, ℥x.
Tinct. ferri perchloridi,
Spts. chloroformi, āā ℥v.
Infus. quassiæ, ad ℥j. M.
This amount thrice daily.

RÉSUMÉ OF REMEDIES.

Belladonna, and its alkaloid, atropia, are the remedies most generally relied upon. Either must be given in sufficient quantities to produce the physiological effects of the drug.

Benzoicum Acidum has frequently been found of value:

458. ℞. Acidi benzoici, ℥ij.
Aquæ cinnamomi, f.℥vj. M.
A tablespoonful thrice daily.

Chloral, grs. v–xv, on retiring at night, is often a complete preventive.

Ergota undoubtedly is often an excellent adjuvant to belladonna.

Ferri Bromidum is used by Dr. HAMMOND. (F. 455.)

Ferri Chloridi Tinctura is largely employed by some practitioners.

Ferri Iodidum is an excellent preparation in some cases, especially in strumous children.

Gelsemium. Dr. EDWARD R. MAYER states that cases of enuresis, both infantile and senile, have under his care been cured by gelsemium when belladonna had entirely failed. (*Hints on Specific Medication*, 1876.)

Strychnia. Hypodermic injections of strychnine have recently been used by KELP (*D. Arch. für Klin. Med.*) in the treatment of enuresis, with good results. He reports the case of a girl, sixteen years of age, in which the affection had continued from infancy. He commenced by injecting one-sixteenth of a grain, afterwards one-eighth to one-sixth of a grain, into the sacral region. The improvement was distinctly perceptible, even after the first injection. A complete cure was obtained in less than four months. The injections were repeated as often as the trouble re-appeared. Other successful cases are reported.

IRRITABLE BLADDER. (STRANGURY, DYSURIA.)

DR. THOMAS HAWKES TANNER.

In vesical irritability the urine should always be examined; and if it is found to vary from the normal condition, the treatment must be directed to remedy this.

In simple irritability of the bladder, not of long duration, atten-

tion to regimen generally, the avoidance of all stimulating drinks, and tepid salt-water baths, will often effect a cure. The dilute nitro-muriatic acid in decoction of pareira brava is very useful when the urine is alkaline or only slightly acid.

459. ℞. Acidi nitro-hydrochlorici diluti, f. ʒ iss.
Tincturæ belladonnæ,
Extracti pareiræ liquidi, āā f. ʒ j.
Decoctum pareiræ, ad f. ℥ viij. M.
One-sixth part twice or three times a day.

When the urine is found to be abnormally acid, the following mixture will often do great good:

460. ℞ Liquoris potassæ, ♏x–xv.
Tincturæ hyoscyami, ♏xl.
Infusi buchu, f. ʒ iss. M.
This amount three times a day.

Opiate suppositories at bedtime, or five or ten grains of the extract of henbane in a pill, lessen the irritability in all cases, and allow of a good night's rest. In general debility, or when the irritability comes on in young women at the catamenial periods, ferruginous tonics should be ordered. The tincture of cantharides, with or without the tincture of the sesquichloride of iron, has relieved all the symptoms of a few obstinate cases after other means have failed.

The following vaginal suppositories often prove very useful in women:

461. ℞. Zinci oxidi, ℈ iv.
Extracti belladonnæ, ℈ ij.
Olei theobromæ, ʒ j.
Olei olivæ, f. ʒ ij. M.
Make eight vaginal suppositories.

PROFESSOR GUNNING S. BEDFORD, OF NEW YORK.

462. ℞. Extracti hyoscyami,
Pulveris camphoræ,
Pulveris ipecac. et opii, āā gr. xij. M.
Make twelve powders. One every ten or twenty minutes until relief is obtained.

Professor BEDFORD says this is the best remedy for strangury he has ever found.

In the general treatment for strangury, the result of the absorption

of catharidine or turpentine, prompt relief is generally afforded by a full rectal injection of starch and laudanum, together with the administration of tinctura camphoræ, gtt. xv–xx, repeated every half hour; or a pill of camphor, gr. iij, opium gr. ¼, every half hour. A hot sitz-bath, or hot cloths to the perinæum, genitals and hypogastrium, are valuable aids.

DR. W. SCOTT HILL, OF MAINE.

463. ℞. Potassii bromidi, gr. iv.
Potassii carbonatis, gr. iij.
Fld. extracti gelsemii, ♏x.
Aquæ, f.℥ ij. M.
For one dose every four or six hours.

The above has been found by Dr. SCOTT to exercise very beneficial effects in irritable bladder, characterized by frequent calls to pass the urine, which is voided in but small quantities, often but a few drops, attended by excessive pain during micturition. Some of his cases were of gonorrhœal, others of traumatic origin. The ingredient of importance is the gelsemium; while the addition of the carbonate corrects acidity, and the bromide acts as a nervous sedative. Tilden's fluid extract is the preparation employed. (*American Journal of Medical Science*, February, 1872.)

RÉSUMÉ OF REMEDIES.

Ammonii Bromidum, gr. xx–xxx, in water, half an hour after each meal, is useful in cases of morbid sensibility of the bladder without obvious cause.

Ammonii Cĭtras. In those forms of irritable bladder, in which the urine is of low specific gravity and deficient in urea, the following has been found of great value, although many of these cases are connected with serious organic disease of the kidneys and palliation is all that can be looked for. The formula is one by the late Dr. PROUT:

464. ℞. Ammonii sesqui carbonatis, ℥j.
Acidi citrici, gr. lxxv.
Aquæ, f.℥ vj. M.
One ounce of this to be taken three or four times daily.

Belladonna. In almost all varieties of morbid nervous irritability of the bladder, after removal of the exciting cause, this drug is found most soothing and efficacious. Dr. GROSS prefers it in the form of the juice, in doses of about five drops, repeated three or four times in the twenty-four hours. In the neuralgic form of the disease, he combines it with quinine, strychnia and

arsenic. Dr. TANNER administers the extract internally or with oxide of zinc as a pessary. (F. 459, 461.) A solution of atropia is a convenient mode of administering it, (atropiæ, gr. j, aquæ. f. ℥ j.; three to five drops for a dose.) The physiological effects of the drug must be obtained to insure its medicinal influence.

Camphora is extremely useful in strangury. It may be given as *aqua camphoræ* in ounce doses, combined with $\frac{1}{16}$ of a grain of morphia, every quarter of an hour, until four or six doses be taken. When it is feared that strangury will result from the application of a cantharidal blister, this complication can be prevented by wetting the surface of the blister with tincture of camphor before applying it.

Cannabis Indica is used by some surgeons.

Cantharis is especially valuable in vesical irritability as it occurs in women, without the existence of acute inflammation, and not produced by uterine displacements; also in the vesical tenesmus which sometimes accompanies chronic prostatic disease.

Carbonicum Acidum. As a local sedative, carbonic acid gas has been employed with considerable success in relieving pain and checking the constant desire to void the urine. (See under Spermatorrhea for the method of applying the gas.)

Chloral, in occasional small doses, is frequently efficacious in relieving the symptoms, especially when dependent on lesions of the brain or spinal cord.

Colchicum often succeeds admirably when the patient is of the rheumatic or gouty dyscrasia. The following is a good combination:

465. ℞. Vini colchici,
Spiritûs ætheris nitrosi, āā f. ℥ j.
Morphiæ sulphatis, gr. ¼.
Aquæ, f. ℥ j. M.
This amount every night at bedtime. (GROSS.)

Copaiba. The internal use of the balsam of copaiba is particularly called for in irritability from inflammatory causes, after the acute symptoms have measurably subsided.

Digitalis. In irritability with suppression a digitalis poultice will often relieve the symptoms.

Gelsemium is frequently an efficient agent in allaying vesical irritability.

Opium, in the form of laudanum enemata, is very efficient in simple irritability; also as suppositories.

466. ℞. Pulveris opii, gr. j–ij.
Butyri cocoæ, q. s. M.
For one rectal suppository.

Potasii Bromidum, and the other bromides, freely given internally, often relieve the pain and spasm.

Zinci Oxidum is added to vaginal suppositories for vesical irritability with advantage. (F. 461.)

LITHIASIS. (STONE, CALCULUS, GRAVEL.)

PROFESSOR JOHN W. S. GOULEY, M. D., OF NEW YORK.

This surgeon, who has given much attention to the removal of calculi by lithotripsy, remarks that there are many cases so treated where the cystitis continues for a long period; and the opponents of the operation are too ready to attribute it to lithotripsy, losing sight of the fact that this inflammatory condition had existed long before the operation, which has often greatly mitigated and rendered it much more controllable.

One of the reasons for the continuance of this cystitis is neglect of after-treatment. The French often begin to treat the cystitis before operating, and continue the treatment after the operation until all traces of inflammation disappear. Stagnation of urine is of very common occurrence in calculous cystitis; patients seldom completely empty the bladder before or after some of the operations for stone, and as long as there is stagnation, even only to a small fraction of an ounce, cystitis will continue, and in a few months may become obstinate, and even give rise to a phosphatic stone. Of late the English have adopted the French practice of constantly withdrawing the residual urine, and of beginning vesical irrigation immediately after lithotripsy

Many American surgeons now make it a rule to instruct patients to draw off the last drop of residual urine twice daily, and to irrigate the bladder, and enjoin them to continue this practice until the urine is clear and passed at normal intervals, and tell them besides that to neglect this is to render themselves liable to the recurrence of stone. In some cases, it is necessary to irrigate the bladder with nitrate of silver solution (weak), but in the majority tepid water or a borax solution will suffice.

One of the main points in after-treatment is to guard against the recurrence of stone. Whatever may have been the original cause should, if possible, be removed. If, for instance, the stone has been of diathetic origin, such hygienic rules and medical treatment should be prescribed as the case requires. The existing dyspepsia should be relieved, and the chylo-poietic viscera put as soon as possible into their normal condition. In addition to attention to diet, to the functions of the skin, to exercise, etc., Dr. GOULEY is in the habit of

giving a few brisk cathartics, then to prescribe a laxative and alterative pill, after the following formula:

467. ℞. Resinæ podophylli,
Ext. fl. ipecacuan.,
Ext. nucis vomic. alch., ää gr. v.
Hydrastinæ, gr. xxx.
Leptandrinæ, gr. xx. M.
Make twenty pills. One pill every night.

After the patient has taken forty or more of these pills, he should take a small dose of Friederichshall bitter water, or the Hunyadi Janos, every morning half an hour before breakfast, or the following:

468. ℞. Sodii sulphatis, ℥ j.
Ammonii chloridi, ʒ ss. M.
To be dissolved in a pint of water; dose, one tablespoonful in half a glass of water every morning, half an hour before breakfast. This may be continued for several months. A grain of sulphate of iron may be added to each dose.

DR. GEORGE HARLEY, F. R. S., ENGLAND.

This author has given a series of directions for arresting the formation of uric acid calculi, and facilitating their discharge. Tea, coffee, wines and beers are to be prohibited, or at least used in great moderation. He attaches great importance to the quantity and quality of the drinking-water. Hard water should be carefully avoided. Distilled water is preferable both for drinking and cooking purposes. A patient should take it freely, say from two to three pints of filtered rain-water in the twenty-four hours. As regards the benefits of the natural mineral waters, he believed they are chiefly due to the *alkalies* they contain. Of these, the carbonates, citrates and acetates of soda, potash and lithia, are those in most general use. Ammonia is not suitable, as the salt it forms in the uric acid diathesis is less soluble than any of the others. More depends on the dose than the kind of alkali given. As a general rule, it is unnecessary to render the urine more than neutral, except in cases where we are attempting to dissolve a stone already formed.

DR. DEBOUT D'ESTRÉES, OF FRANCE.

In reference to the prevention of gravel, this writer observes (*Practitioner*, June, 1877,) that he has learned from experience with regard

to the effect of some vegetables, viz., asparagus, sorrel, tomatoes, green beans, in the production of uric acid in all those who are affected with gravel. The absorption of asparagus in a rather considerable number of cases, about 20 per cent., is followed by more or less violent pains in the loins, and sometimes shortly afterwards by nephritic colic. He never noticed that it was followed by a more considerable expulsion of uric acid. He is of opinion that asparagus does not produce uric acid, but that as it determines temporary congestion in a kidney which already contains some red sand, it facilitates the agglomeration of it, and may produce the formation of gravel.

With reference to sorrel, green beans, and tomatoes, they less frequently produce pains in the loins, but their absorption is followed by the emission of uric acid; nevertheless, a small number of patients complain of pain in their loins after having eaten those vegetables; and with some, this is so evident that they spontaneously cease eating them.

In the treatment of the different forms of gravel, he strongly recommends the mineral waters of Contrexeville. It expels the gravel without pain, and is both tonic and restorative.

SIR HENRY THOMPSON, F. R. C. S., ETC., LONDON.

This distinguished surgeon delivered some lectures in 1873 on the preventive treatment of calculous disease, and as nineteen or twenty stones are urates, his especial question was, "How to prevent uric acid calculus?" He condemns reliance on diuretics and strongly alkaline waters, such as Vichy. At the bottom of the tendency to uric acid production, there often lies inactivity of the liver. For this, nothing is so valuable as the *saline* mineral waters, as Pülna, Friederichshall, Marienbad, Carlsbad or Franzensbad, (in order of their strength.) These waters should be given, from three to ten ounces, with half the quantity of hot water, before breakfast. In regard to *diet*, the patient should eschew alcohol, saccharine and fatty articles. Butter, cream and pastry are included in the last mentioned. Fresh, green vegetables may be taken freely, but not sweet fruits, as grapes, pears and plums.

All medicinal agents, secret or professional, are solutions of lime, soda or potash, alone or combined. Of all these, the citrate and the bicarbonate of potash are preferred by our author. The former may

be taken in doses of gr. xl–l, every three or four hours, in aquæ f. ʒiv. The following conditions are essential to success: certainty that the stone is uric acid and of small size; that the urine is acid, and never ammoniacal.

469. ℞. Potassii bicarbonatis, ʒxij.
Acidi citrici, gr. viij–xxiv.
Aquam, ad f.ʒxij. M.

One or two tablespoonfuls in a glass of water, thrice daily. Each ounce contains ʒj citrate of potassa.

DR. VENABLES, LONDON.

470. ℞. Sodii boratis, gr. vij.
Sodii bicarbonatis, gr. ix.
Syrupi aurantii corticis, f.ʒiss. M.

To be taken during the day, in soda-water, for the red deposit seen in the urine of persons predisposed to gravel. The borax and the bicarbonate of sodium may be replaced by from four to six grains of carbonate of lithium.

S. W. BUTLER, M. D., PHILADELPHIA.

471. ℞. Fresh root of hydrangea arborescens, 2 pounds.
Water, 6 quarts. M.

Boil down to two quarts; strain, and add one quart of honey, and boil down to one quart. A teaspoonful twice or three times a day.

Dr. BUTLER highly recommends this remedy in cases of sabulous and gravelly deposits in the bladder. Under its use large quantities of sand and gravel have been removed.

A fluid extract of the hydrangea arborescens is prepared by the leading pharmaceutists, and may be readily obtained.

C. W. FRISBIE, M. D., NEW YORK.

472. ℞ Sodii biboratis, ʒij.
Extracti uvæ ursi fluidi, f.ʒj.
Spiritûs ætheris nitrici,
Tincturæ opii deodoratæ, āā f.ʒss.
Aquæ, f.ʒiij. M.

A teaspoonful from three to six times daily, in uric acid diathesis or brickdust deposit.

The celebrated *Haarlem oil*, used in Holland as a remedy against stone, is:

473. ℞. Olei cadini, f.℥iv.
Olei terebinthinæ, f.℥iij.
Sulphuris loti, ℥j. M.

Make one hundred and twenty capsules. One three times a day.

RÉSUMÉ OF REMEDIES.

Acidi. The mineral acids render important service in the oxalic and the phosphatic varieties of calculus. The nitric or nitro-muriatic acids should be given for a length of time in small, repeated doses. Citric, benzoic, and dilute phosphoric acids have also been prescribed with advantage.

Alkalies. Dr. ROBERTS, of Manchester, has shown that uric or lithic acid calculi may probably be dissolved in the bladder, if the urine is maintained alkaline for some weeks. This treatment is especially useful in renal calculus (kidney or nephritic colic) which is generally composed of uric acid only. Large doses of citrate of potash will often cure patients complaining of much pain in the back, passing bloody urine containing a large quantity of uric acid crystals, and a little pus. One point regarding the medicine given to check the formation of a lithic stone is well worthy of being borne in mind, *i. e.*, that the profuse administration of alkalies when the urine is acid tends to cause a rapid deposit of phosphates upon the surface of the stone, and thus to increase its size. The reaction of the urine should be kept at the *neutral* point, and not *alkaline*. (DRUITT.)

Aqua. An important agent in the prevention of the formation of calculi, is water taken pure and in large quantities. Hard water should be avoided and filtered rain-water preferred. (HARLEY.) Alkaline mineral waters should not be taken very freely.

Ammonii Benzoas is of great value when the urine is ammoniacal and loaded with phosphates. Phosphatic calculi may be dissolved by the long-continued use of this remedy.

Belladonna has been recommended to relieve the spasms during the passage of renal calculi. Given by the mouth or by inhalation, it relieves pain without interfering with that muscular contraction which probably assists in the onward propulsion of the stone The same remark applies to *ether*.

Boracite, the borate of magnesium, was the secret remedy of Paracelsus for stone. Dr. KŒHLER (*Berlin Klin. Wochenschrift*, Nov., 1879,) has found an allied substance, the *boro-citrate of magnesium* in doses of ℥j in water, to promote the discharge of gravel.

Gelsemium has been employed in vesical calculus. Copious diluent drinks are given for twelve or fifteen hours, followed by gelsemium every two hours until general relaxation occurs. The patient is then placed in the knee-elbow position and directed to void his urine forcibly.

Hydrangea Arborescens is valuable to prevent sabulous deposits. (See page 346.)

Lacticum Acidum. When the presence of an excess of the phosphates, uric acid and the urates, and of oxalates of lime in the urine is due to imperfect digestion and assimilation, as is frequently the case, lactic acid has been found of service through improving the digestion.

Lithii Bromidum. This substance, according to M. ROUBAUD (*Bulletin Generale de Therapeutique*, 1876,) possesses, in a high degree, those lithotriptic properties attributed to the salts of lithia, and, in addition, like other bromides, affects reflex sensibility most energetically. It has not, however, the inconvenient action on the heart displayed by bromide of potassium. Consequently, its place in therapeutics is in the first rank among lithiasics and among sedatives, and its action is particularly valuable in the uric acid diathesis, which is accompanied by painful symptoms, and in neuroses, which are so often complicated by the presence of uric acid. The alkaline salts of lithia have also been largely employed in the uric acid diathesis.

Nitricum Acidum, in dilute solution, gtt. j. to aquæ f.℥j has been employed with success by some eminent surgeons for the treatment of phosphatic calculi.

**Opium*, in full doses, given by the mouth, or in the form of enema or suppository, is a remedy of great value. But *morphia*, hypodermically, is usually more effectual than any of these modes of administering opium.

Stigmata Maidis. Dr. DUPONT, of Buenos Ayres, states that in uric and phosphatic gravel the best results are obtained from infusions of this substance. (*Rev. Med. Quirurg.*, 1879.)

Potassii Acetas is employed in uric acid calculus.

Potassii Bicarbonas, employed as the last mentioned. (F. 469, 470.)

Potassii Citras. A valuable alkaline remedy. (See Alkalies.)

Potassii Permanganas. This salt favors the conversion of uric acid into urea, and thus prevents the formation of uric acid calculi. Pain in the lumbar region, frequent micturition, acid urine, brickdust sediment, and intestinal indigestion, are associated symptoms relieved by the permanganate. (BARTHOLOW.)

Triticum Repens, in decoction (℥ij to aquæ Oj, boiled for fifteen minutes and strained), is said to have afforded great relief in renal calculus.

**Baths.* The hot bath or hip bath is a useful, soothing remedy.

Ice. Dr. W. PROUT states that in protracted suffering in the passage of renal calculi he has occasionally obtained relief from the application of pounded ice to the region of the kidney. It is chiefly applicable when the calculus is of oxalate of lime, or the phosphate, but is not to be employed in plethoric, gouty patients suffering from lithic acid and calculi.

PROSTATIC DISEASES.

DRS. VAN BUREN AND KEYES, OF NEW YORK CITY.

Prostatic Hypertrophy.—The catheter is the natural specific for enlarged prostate. The patient should be instructed to use it himself, to draw off the residual urine. The bowels should be kept soluble with a gentle laxative, such as senna confection, and he should take a mild alkali, as potassii citratis, gr. x–xxx, three times a day. Merino should be worn in summer, flannel in winter, the feet kept warm, and moderate exercise (except horseback riding) enjoined. "It is a rule with no exceptions that a patient with hypertrophied prostate is never safe unless he can pass a catheter for himself." He should also be taught how to wash out his bladder. Simple warm water may be used for this, or if the cystitis does not diminish and there is a free secretion of pus, nothing better can be suggested than this formula of Sir HENRY THOMPSON:

474. ℞. Plumbi acetatis, gr. ½–1.
Aquæ, f.℥j. M.

Or:

475. ℞. Acidi nitrici diluti, ♏j–ij.
Aquæ, f.℥j. M.

Or:

476. ℞. Potassii chloratis, gr. v–xv.
Aquæ, f.℥j. M.

For a continuous soothing injection, one which has power to check the pus formation, the combination of Sir HENRY THOMPSON, of borax and glycerine, is excellent. (See page 330.)

When there is much pain, opium in suppository may be used, divided into small doses.

477. ℞. Extracti opii aquosi, gr. ss–ij.
Butyri cocoæ, q. s. M.
Make six suppositories. One every four to six hours.

Atropine in injections is uncertain in its action, but occasionally

gives relief by lengthening the period of urination and modifying pain.

478. ℞. Atropiæ sulphatis, gr. $\frac{1}{2}$.
Aquæ, f.℥ vj. M.
For a vesical injection. The amount may be cautiously increased.

Cystitis must also be combated by the usual remedies.

Prostatitis.—In follicular prostatitis, or prostatorrhœa, no remedy is so efficacious as repeated mild blistering of the perinæum. It is best applied by painting cantharidal collodion upon one side of the perineum, confining the patient for forty-eight hours to bed, and painting the other side of the raphe as soon as the soreness of the first application begins to subside. In applying the collodion, great care must be taken not to involve the scrotum and anus. The former had best be bound up tightly and the blistered surface covered with cold cream and lint. The diet should be supporting and tonics given if needed. The urine should be modified by alkaline diluents. As a tonic Dr. BUMSTEAD commends:

479. ℞. Acidi phosphorici diluti, f.℥j.
Strychniæ sulphatis, gr. $\frac{1}{24}$.
Aquæ, f.℥ ss. M.
This amount two or three times daily.

DR. F. MAGENDIE, PARIS.

As *enlargement of the postate* is a so frequent and annoying affection, which does not admit of cure by the knife, our attention is the more drawn to therapeutic measures. Dr. MAGENDIE believes that *muriate of ammonia* has a decided effect in reducing the gland. He gives:

480. ℞. Ammonii chloridi, ℈j.
Extracti conii, gr. ij. M.
This amount, in any appropriate vehicle, thrice daily.

MR. R. A. STAFFORD, F. R. C. S., LONDON.

This surgeon believes that he has succeeded in diminishing simple prostatic hypertrophy by the use of:

481. ℞. Potassii iodidi, gr. ij–iv.
Extracti hyoscyami, gr. v–viij. M.
Make a suppository. One every night.

When the urine is acid, the liquor potassæ or other alkali should be administered to restore its alkalinity.

Later writers speak highly of suppositories of *iodoform*. Professor BARTHOLOW remarks, "the iodoform diffuses into the neighboring organs and acts directly upon them."

PROF. S. D. GROSS, M. D.

If the patient is plethoric, apply leeches to the perinæum, and unload the bowels by saline purgatives (sulphate of magnesia or bitartrate of potassa.) Condiments and alcoholic drinks must be renounced, also horseback exercise and venery. The patients must seek the horizontal position, wear flannel next the skin, and avoid exposure to cold.

DR. WASHINGTON L. ATLEE, PHILADELPHIA.

482. ℞. Fluidi extracti ergotæ, gtt. xxx.

This amount is to be given at first every four hours, its action being supplemented by the use of the catheter twice daily, until the patient regains entire control of the bladder. As this is restored, the frequency of the dose is gradually reduced to a single administration, at bedtime.

This treatment has been very successful in the hands of this late eminent surgeon. (See *Med. and Surg. Reporter*, May, 1878.)

PROF. HEINE, INNSPRUCK, GERMANY.

483. ℞. Potassii iodidi, ʒ ij.
Tincturæ iodinii, f ʒ ij.
Aquæ destillatæ, f. ʒ ij. M.

Of this solution, twelve to twenty drops are to be thrown into the substance of the gland, to a depth of two lines, the operation to be repeated every seven or fourteen days.

Great care is required to avoid parenchymatous suppuration. The median line of the prostate is to be avoided.

PROF. DITTEL, VIENNA.

This surgeon, in advanced prostatic disease, has recourse to a form of supra-pubic puncture. Having anæsthetized his patient, he forcibly distends the bladder with water, unless it should be capable of being

filled by allowing the urine to accumulate. For this purpose he injects sometimes as much as forty ounces of water. He then punctures the bladder just above the pubes with an ordinary trocar, leaving the canula in the bladder during four, five, or six days. At the end of this lapse of time, the parts traversed by the canula having become consolidated, a tubular tract is formed, through which, on removal of the canula, a soft rubber catheter can readily be passed into the bladder. This is permanently secured in place by means of a perforated plate of hard rubber, through the central opening of which the catheter protrudes, being fastened to the margins of the orifice by means of a pin; the plate itself is kept in place by a belt, the extremities of which are fastened to the ends of the plate. Such an apparatus is, however, not indispensable, as means of retention can easily be improvised in various ways, the simplest consisting in the use of a long pin which traverses the catheter transversely at its point of evergence above the pubes, and across the ends of which strips of adhesive plaster are placed.

XII. LESIONS OF THE ORGANS OF REPRODUCTION.

Balanitis—Hydrocele—Impotence—Masturbation, (Self-Abuse, Onanism,)—Orchitis (Epididymitis)—Spermatorrhœa—Varicocele.

BALANITIS.

AUGUSTE CULLERIER, OF PARIS.

When it is possible to uncover the glans, make three or four dressings a day with a piece of fine linen or lint, (inserted between the glans and prepuce,) wet with one of the following

ASTRINGENT SOLUTIONS:

484. ℞. Argenti nitratis, gr. iij–iv.
Aquæ destillatæ, f.℥ iv. M.

485. ℞. Aluminis, ℈ij–iv.
Aquæ rosæ, f.℥ iv. M.

486. ℞. Acidi tannici, gr. xv–xxx.
Vini aromatici, f.℥ xj.
Aquæ rosæ, q. s. ad f.℥ iv. M.

487. ℞. Tincturæ iodinii, ♏xv–xxx.
Aquæ destillatæ, f.℥ ix. M.

SILAS DURKEE, M. D., BOSTON.

The best topical application in this disease for slight abrasions and small patches of apthæ is the following:

488. ℞. Liquoris sodæ chlorinatæ, f.℥ ss.
Aquæ, f.℥ vij. M.

This solution is to be applied on pieces of lint between the prepuce and the glans, three or four times a day.

If the erosion be considerable, and the puriform exudation copious, an astringent lotion may be appropriate, thus:

489. ℞.	Zinci sulphatis,	gr. ij.	
	Acidi tannici,	gr. iv.	
	Glycerinæ,	f. ʒ ij.	
	Aquæ,	f. ʒ iv.	M.

Apply with lint.

Simple *lime-water* will frequently effect a cure.

Balano-posthitis requires most frequently only local treatment. When, however, the inflammation tends to become phlegmonous, and threatens to terminate in gangrene, it is well to subject the patient to a severe regimen, and to the use of antiphlogistics, diet, repose, general baths, demulcent drinks, saline purgatives, etc. In order to combat gangrene, order:

490. ℞.	Camphoræ,	ʒ ss.	
	Extracti opii,	gr. iij.	
	Moschi,	gr. vijss.	M.

For forty pills. From six to ten a day.

The penis should be wrapped up in compresses, moistened with the following strongly opiated solution:

491. ℞.	Extracti opii,	℈ ij.	
	Vini aromatici,	f. ʒ iij.	
	Aquæ rosæ,	f. ʒ vj.	M.

After the inflammation has subsided, lotions and intra-preputial injections, with the solution given above, should be resorted to.

Dr. EDWARD R. MAYER states that in balanitis the best local application one can use is a decoction of *Hydrastis Canadensis*, or, preferably, a solution of the muriate of hydrastia in glycerine.

DRS. VAN BUREN AND KEYES.

If the prepuce can be retracted, simple balanitis may be speedily relieved. Cleanliness is of the first importance, but soap should not be used. Warm water, to which a disinfectant may be added if needed, will remove all the discharges. After washing, the parts should be gently dried by touching them with a soft cloth, and dusted with a mixture of finely-powdered calomel and calcined magnesia, or with calomel alone. If the ulcerations are deep, iodoform is prefer-

able. A piece of lint or old linen, cut so as to be just large enough to cover the surface of the glans, is now to be moistened in one of the following lotions:

492. ℞. Vini aromatici, f.℥ij-ℨss.
Aquæ, f.℥j. M.

Or:

493. ℞. Pulveris opii, ℥j.
Aquæ bullientis, f.℥vj.
Dissolve and add,
Liquoris plumbi subacetatis, f.℥j.
Filter and cool.

Or:

494. ℞. Aluminis exusti, gr. v-x.
Aquæ, f.℥j. M.
For a lotion.

The linen so moistened is laid around the glans, leaving the apex and meatus uncovered; and finally, the prepuce is pulled forward to its natural position. This dressing is to be repeated twice or four times daily, according to the amount of the discharge.

In some cases the prepuce cannot be retracted: in this event, its *cul de sac* should be thoroughly washed out with tepid water by means of a syringe with a flat nozzle, every two or three hours; and each time after the cavity has been cleaned, a mild solution of carbolic acid, or enough of any of the lotions above mentioned to distend the prepuce, should be gently thrown in, retained a moment, and then allowed to escape. If they cause smarting, their strength should be reduced.

In case the prepuce is much inflamed, rest, position and evaporating lotions locally, should be used in addition to the above measures. If the inflammation runs so high that sloughing of the prepuce appears imminent, it is better to relieve the tension by slitting up the dorsum; but if chancroid be present, inoculation of the wound is inevitable, and the operation should be postponed to the last moment.

In chronic and inveterate balanitis, or where constant relapses follow insignificant causes, *circumcision* affords a certain cure. All the unhealthy thickened inner layer of the prepuce should be removed. When this is not feasible, relapses may be rendered less frequent by

the observance of the strictest cleanliness and by the persistent daily use of one of the following lotions:

495. ℞. Acidi tannici, ℥j.
Glycerinæ, f.℥j. M.

Or:

496. ℞. Alcoholis, f.℥j.
Aquæ, f.℥ij. M.
For a lotion.

The same treatment applies to *herpes præputialis.*

HYDROCELE,

PROFESSOR JAMES SYME, F. R. S. E.

This eminent surgeon condemns in the strongest language all other proceedings in hydrocele than that of injection, and all other injections than *iodine.* With this properly done, he was *invariably* successful.

In order to secure the undoubted efficacy of the treatment, it must be done with strict attention to the following circumstances: In the first place the patient should *stand* while the sac is tapped, in order to let the water be drained off completely. Then f. ℥ij of Edinburgh tincture of iodine (iodinii ℥ iiss, alcoholis O ij,) should be injected unless the tumor is either very large or very small, when there may be a corresponding increase or diminution of the quantity employed. And lastly, a rough shake of the scrotum should diffuse the injected fluid over the whole surface of the cavity.

The pain which ensues is generally slight and transient, hardly requiring any confinement; and at the end of two or three days, the swelling having attained its height, begins to subside, so that it speedily disappears.

This operation is applicable to all the forms of hydrocele, whether it be the ordinary one of water in the tunica vaginalis, or a collection of fluid in the spermatic cord, or that peculiar condition named

Spermatocele, which has been commonly regarded as not amenable to injection.

MR. FORNEAUX JORDAN, BIRMINGHAM.

This able surgeon remarks (in the *Lancet*, Jan., 1876,) that in boys and men there are occasionally encysted hydroceles of the testis, or the cord, which continue to increase in size, or in which treatment is urgently requested, In such cases, except in early infancy, acupuncture or the use of a fine trocar often fails to cure. The walls of the cysts are usually thin, and collapse so much when their contents are withdrawn that the injection of a fluid is uncertain. The end of the canula may be outside the cyst, and the iodine solution be consequently injected into the connective tissue at its exterior.

In such cases the following is a reliable method of treatment: The cyst being well isolated, made tense, and brought near the surface, the surgeon passes through its centre a stout needle, armed with silk, and leaves the threads hanging. The fluid quickly oozes away, especially if a little traction be made on the threads. He then, at one opening, wets the threads with *iodine liniment* (liniment because the quantity required is so limited,) and draws the threads so as to leave moistened portions within the cyst. A little gentle friction will help to spread the iodine thoroughly over the lining membrane of the cavity. An hour later freshly-moistened portions may again be drawn through if the cyst be large, or if other methods of treatment have failed. On the other hand, in a very small cyst, a single thread, moistened and kept in one hour, will suffice.

In the *Union Med. de Canada*, Dr. LUBIN states, that observing the frequent lumbar pain consequent upon the use of the ordinary injections in this affection, he was led to use a formula similar to the following:

497. ℞. Tinct. iodinii comp., f. ℥ iij.
Chloroformi, f. ℥ ijss. M.

In a number of cases in which this mixture has been used, no pain whatever followed this injection.

Dr. FRANCIS LABAT has lately described the good results obtained in the cure of congenital hydrocele by injections of *alcohol* according to Monad's method. The following plan is pursued (*Thèse de Paris*, Nov. 19th, 1877): With a subcutaneous injection-syringe, one gramme of the serous matter contained in the hydrocele is evacuated, and one

gramme of alcohol injected with the same syringe. In the meantime, pressure is made on the inguinal canal, and prolonged some minutes after the alcoholic injection.

Prof. HUTER and other German writers have recently highly extolled *carbolic acid* in a one or two per cent. solution. According to this surgeon there is no pain whatever, either during or after the injection; a patient took a walk immediately after, and would not stay at home on the second day. On the fifth day there was no swelling or tenderness, and the hydrocele could be considered cured. This plan of treatment, therefore, surpasses all the previous ones in painless and radical cure.

Dr. WAGNER, of Königshütte, recommends, as preferable to the usual procedures, the following plan: By means of a Pravaz veterinary syringe, which will hold about five grammes, the liquid of the hydrocele is to be completely aspired. When the syringe is filled, the needle having been removed, it is to be emptied and re-applied as often as necessary, until every drop of the liquid has been removed. As soon as this has been accomplished, from five centigrammes to a gramme of a one per cent. solution of carbolic acid is to be placed in the syringe (previously disinfected), and slowly injected into the sac of the hydrocele, manipulating this a little after the point of the needle has been withdrawn. One *seance* should suffice, as the mothers are unwilling to allow a repetition; and care should be taken to previously ascertain that the liquid of the hydrocele has ceased to have any communication with the abdomen.

THE HYDROCELE OF INFANTS.

Dr. SAINT GERMAIN, of Paris, believes that it is not advisable to subject an infant with hydrocele to even the simplest operation, until a trial has been made of a saturated solution of *muriate of ammonia*. Compresses dipped in such a solution should be applied. Sometimes an erythema, even slight vesication, may be caused, but the part may be covered with powder, and the cure is not retarded.

Prof. D. HAYES AGNEW is accustomed, in such cases, to order frictions with an unguent:

498. ℞. Ammonii muriatis, gr. xx–xxx.
Adipis, ℥j. M.
For an unguent. To be thoroughly rubbed over the part twice each day for three weeks.

Should this not succeed in producing absorption, he punctures the tumor and drains off the liquid, and carrying through the sac one or two silk strands, allows them to remain in position about thirty-six to forty-eight hours, that is, until they have produced considerable inflammation, but not enough to endanger the peritoneum.

Electrolysis has been used, with decided success, in hydroceles. Drs. BEARD and ROCKWELL remark that the great end to be accomplished is not the withdrawing of the fluid, which can be done with the ordinary trocar, but the stimulation of the membrane of the sac so that absorption shall take place, and that the fluid shall not again collect. Many of the failures that have occurred in the treatment of hydrocele, have been owing to a misapprehension of this fact.

The method is to introduce the needles into the tumor at opposite sides, and so deep that the points nearly approach each other. The needles are then attached to from three to six elements of a galvanic battery. The application should be made for five or ten minutes. One, two or three applications usually suffice to complete a cure.

Dr. ULTZMANN, of Vienna, in an article in the *Wiener Medicinische Presse*, 1876, concludes, from a series of experiments on cysts of the tunica vaginalis and ovaries, that the electrical current has no power of causing absorption, and that the results obtained with it are due to other reasons. Hydroceles of the size of the fist may be often made to disappear after one application.

The process he adopts is as follows: The insertion of the needle causes a slight mortification along the line of puncture, which prevents healing *per primam*. By this channel the fluid of the cyst escapes drop by drop, infiltrating the scrotum, and being absorbed by the clothing. This purely mechanical process is favored by the development at the negative pole of the oxygen gas, which drives out the fluid; but it takes place only in cysts which contain serous or sero-albuminous fluid. If the cyst-fluid be thick, it will not flow out through the puncture. As a matter of course, moreover, the needle must pass through the cyst-wall; and, in case the cyst contains blood or decomposing pus, like many ovarian cysts, the procedure is dangerous, because the fluid, in oozing out, may cause acute peritonitis. This occurred in one case, and necessitated immediate tapping. ULTZMANN asserts that the chemical composition of a fluid is absolutely unaltered by the electrical current.

His applications were conducted with a Leclanché battery of twenty-

four cells, whose negative pole—a needle of gold or platinum—was thrust into the cyst; and whose positive pole—a sponge-holder—was placed on the skin. The sittings, of twenty to thirty minutes' duration, were had every second or third day.

IMPOTENCE.

DR. THOMAS HAWKES TANNER.

The act of copulation may be rendered impracticable in man by a variety of causes, some of which can be readily removed, some removed after more or less treatment, while others again are wholly incurable. In examining any case, therefore, it is necessary to discriminate carefully their etiological moments. They may be summed up as follows:

1. *Absence* or want of *development*, *malformation* or *mutilation* of the penis or testes.—These are, usually, hopeless cases, though sometimes malformation may be remedied by surgical procedures.

2. *Mental Influences.*—Violent emotion, excess of passion, overexcited and especially long-repressed desire, want of confidence, timidity, anxiety, hard study, grief, disgust, all may deprive the person temporarily of his powers. These causes can all be removed, and their treatment calls rather upon the tact and skill of the physician, than upon his knowledge of the materia medica.

3. *Acute Diseases.*—Not unfrequently after fevers and other severe diseases the sexual organs remain feeble long after the general health is restored. These are proper cases for the exhibition of those nerve tonics whose especial action is upon the generative organs. The prognosis in young and middle-aged men is generally favorable.

4. *Injuries to the Cerebellum.*—Falls, blows and other injuries on the back part of the head are sometimes followed by loss of generative power. Such cases are generally incurable, and are apt to be followed by atrophy of the testes and penis.

5. *Injuries and Diseases of the Spinal Cord.*—Certain injuries and diseases of the cord, such as hemiplegia, locomotor ataxia, progressive muscular atrophy, etc., remove the power to copulate owing to deficient erections, althou[illegible] may remain and semen continue to be secreted.

6. *Anaphrodisiacs.*—The excessive use of tobacco impairs digestion and weakens the nervous and muscular systems; opium-eating acts in the same way; the frequent use of bromide of potassium, camphor, lupulin, and some other substances, diminishes both desire and power.

7. *Abuse of the Function.*—This may be by excessive sexual indulgence, or onanism, thus removing the power of erection. Proper regimen and a tonic treatment will generally restore such cases.

8. *Obesity.*—The excessive accumulation of fat weakens the sexual power.

9. *Prolonged Continence.*—The non-use of the function diminishes its activity, and may result in producing inability. Such cases, when otherwise healthy, are usually readily amenable to treatment.

10. *Abscess* or other acute disease of the *prostate gland.*

11. *Diabetes.*—It is not rare to find impotence supervene in advanced diabetes. Of course the prognosis is most unfavorable. Impotence is often also one of the first signs of approaching diabetes; and whenever individuals are met with who, previously virile, become weak and impotent, without coinciding disease, especially of the spinal marrow, diabetes will usually be found to be the cause.

12. *Atrophy of the Testes* following mumps or syphilis.

In addition to these various causes, Sir JAMES PAGET remarks that all sexual desire and power may cease in apparently healthy men, without apparent cause, at unusually early ages; thus, he has known cases where it has completely disappeared as early as thirty-five or forty years, even in men who had never masturbated and rarely had sexual intercourse.

SIR JAMES PAGET.

The more common cases of impotence are those due to nervous disorder or to mental defect; and the impotence which is complained of or dreaded without any real reason, is more common still.

Some of these mental and nervous defects hinder or interrupt erection; some prevent emission; some are only occasional; a few are habitual or even constant. They may be cured, if at all, by means addressed to the nervous system; but they are all hard to cure—as hard as it is to cure stammering, whether in speech or in any other function.

If a man has sexual organs, including the prostate, not manifestly diseased or wasted, and has erections and occasional nocturnal emissions,

and any sexual desire, the surgeon may be very confident he is not impotent from any other cause than a mental or nervous one. A full and free statement that the presumed impotence is merely a nervous phenomenon will often relieve anxiety, and with it the trouble itself.

A sensible man, who has only been ignorant on sexual subjects, who can understand evidence, and who is ready to believe those who are most likely to tell him what is true, will be cured when the truth is told. At the opposite extreme, the worst class of sexual hypochondriacs are almost incapable of cure; they will believe nothing hopeful; and they will be dull to all common sense statements.

DR. SAMUEL W. GROSS, OF PHILADELPHIA.

This surgeon has pointed out that sexual debility and impotence may result from stricture and inflammation of the curved portion of the urethra, brought about by the injurious habit of masturbation (*Medical and Surgical Reporter*, May 5th, 1877.) He remarks that reduced sexual power, from whatever cause it may arise, is one of the most distressing of maladies; and is, therefore, entitled to the deepest sympathy and consideration on the part of the honest practitioner, by whom, unfortunately, it is rarely discussed.

From the intimate connection which exists between the urethra, the prostate, the seminal vesicles, the ejaculatory and the deferential ducts, and the testes, it is not surprising that lesions of that passage should exert a powerful effect upon the functions of generation, whether that effect be due to the extension of morbid action through continuity of structure, or to reflex action. Hence, it is that many persons affected with urethral disorders, suffer from more or less marked disturbance in their sexual powers, amounting, in some instances, to impotence, or inability to copulate, either from incapability of intromission or premature ejaculation, both states being associated with imperfect or transient erections.

The particular form of impotence resulting from *stricture*, is associated with inflammation and hyperæsthesia of the posterior portion of the urethra.

In the majority of the cases that come under observation, the trouble is due to subacute or chronic inflammation and morbid sensibility of the membranous and prostatic portions of the urethra, but particularly the latter locality, and is always associated with deep-seated stricture, which is generally of large calibre. These lesions are traceable, in the

larger proportion of instances, to masturbation. Thus, in fifteen of nineteen cases he records, the sexual difficulty arose from the effects of urethritis, produced by onanism; while in only four was it dependent upon the localization of gonorrhœal inflammation.

These data are not only of the utmost practical value, but they are interesting, as they show that masturbation affects the sexual powers by inducing a state of constant congestion and undue excitability of the urethra, which terminates in inflammation and the formation of a coarctation in its curved or fixed portion. All authors upon self-pollution recognize the fact that the mucous membrane of the prostatic urethra is in an irritable or morbidly sensitive condition; but they overlook the co-existence of a stricture, and ascribe to this habit but little influence in its causation. This most important factor in the origin and maintenance of impotence, has not been sufficiently appreciated; an oversight for which one can only account by the defective means of exploring the urethra which have been, and are still, usually employed. Instead of resorting to the soft exploration bulbous bougie, which is the only instrument with which dilatable strictures, above the medium size, can be accurately determined, the majority of general practitioners still adhere to the use of the ordinary flexible bougie, or metallic catheter, which, in many instances, fails to detect a coarctation, which is the sole cause of many functional disturbances of the genito-urinary tract.

These cases of sexual debility may be divided into four classes:

First. Those in which the erections are imperfect or feeble, and ejaculation too precipitate, but in which sexual desire remains, and intercourse is possible, although incomplete.

Second. Those in which desire is not abolished, but the power of erection is lost, and coitus impossible.

Third. In these there is neither desire nor ability to copulate, but hypochondriasis is superadded; and this mental impotence is often beyond remedy, after the lesions upon which the sexual trouble depended have been removed. In the milder forms of the affection, indeed, the physician is most frequently consulted on account of the fear on the part of the patient, lest he may not be able to consummate the venereal act; but the mind is rarely so seriously affected that he is not open to conviction on this point.

Finally, there is a *fourth* class of cases, in which relative impotence apparently arises from diminished reflex excitability of the spinal cord.

This condition, which is characterized by retarded emission, is probably very rare.

The treatment of these various forms must look toward the local urethral constriction and toward the general condition of the system.

When the subject is robust and plethoric, mild antiphlogistics are indicated; while in anæmic patients, tonics, of which a combination of quinine, tincture of the chloride of iron and tincture of nux vomica is one of the best, will be required. *Bromide of potassium*, in full doses, can never be dispensed with, since it fulfills the triple object of correcting the acidity of the urine, overcoming the sensibility of the urethra and blunting the venereal appetite. When the local lesions have been relieved, its use should be discontinued, and remedies given to strengthen the sexual functions. The bowels should be kept in a soluble state; the diet should be simple and unstimulating, condiments, alcoholic and fermented drinks being avoided; heating exercises and clothing should be discarded; chastity in thought and action should be encouraged; and, finally, when the prostatic hyperæsthesia has disappeared and the sexual vigor is returning, the patient should be advised to marry. When the infirmity has advanced to hypochondriasis, the case is almost hopeless.

Of topical measures none has afforded such good results as the introduction of the *conical steel bougie*, at first every forty-eight hours, and afterwards every day. After the first few insertions it should be immediately withdrawn, but as the sensibility of the urethra diminishes, it should be retained for four or five minutes, and its size be gradually increased. As adjuvants, the local application of mild solutions of *nitrate of silver*, *acetate of lead*, or *tannin*, are useful, as are also cold hip-baths, enemata, and douches to the perinæum. If the disease proves obstinate, as it is liable to do when the prostatic or ejaculatory ducts are involved in the morbid action, the application of the solid *nitrate of silver* may be demanded. Under similar circumstances, flying *blisters* to the perinæum are of service.

The foregoing measures will usually suffice to overcome the morbid sensibility of the prostatic urethra, and dilate the stricture. Dilatation of the stricture alone, however, often fails to restore virility, because the stricture tends to maintain the inflammatory condition of the urethra behind it. In some instances, temporary relief follows; but to effect a permanent cure an operation will be required.

Dr. GROSS gives the preference to retrograde internal incision,

performed with an instrument which he devised, and which he has successfully employed in a number of cases. It is fashioned like the bulbous explorer, and defines a stricture with great accuracy. Having been carried behind the stricture, the blade is projected from the bulb, by sliding the button at the proximal extremity of the shaft, and the coarctation, as well as half an inch of the mucous membrane behind and anterior to it, divided on its withdrawal. The bulb is again carried through the severed parts, with a view of detecting any uncut bands, and a steel bougie, corresponding to the normal size of the urethra, as previously determined by the urethrometer, as once passed, and afterwards used every forty-eight hours, until the wound has cicatrized.

DRS. VAN BUREN AND KEYES.

For the management of the nervous and mental forms of impotence, these authors observe that it is necessary to arouse the moral sentiment of carnal desire, as well as the power of the organs locally to respond.

The first of these is attained by favorable relations to the other sex, and appropriate surroundings, the opera, ballet, the theatre, etc.

The second may be obtained by general dry frictions of the whole body, by massage and the flesh-brush; cold bath, sea-bathing, generous diet, and the internal use of tonic medication; the mineral acids, strychnine, ergot, and especially phosphorus and cantharides, or the two combined, commencing at a fair dose, say phosphorus gr. $1/40$ to tinctura cantharadis gtt. x, three or four hours before the desired erection, and increasing the dose carefully.

Cantharides produces erection without desire; *phosphorus* is apt to increase desire directly.

Cold and heat by the douche, alternated, electricity, and the local application of mustard, are all sometimes serviceable in recalling the power of erection. Occasionally decided advantage is derived from the *equalizer*, a large cell in which the patient sits with his head out, and from which the air is exhausted.

DRS. GEORGE M. BEARD AND A. D. ROCKWELL.

In regard to the success which may be expected to result from the use of *electricity* in absent or diminished sexual power, these authors remark that not only in its incipient, but in its more advanced stages,

impotence is not unfrequently the result of organic lesions of the nerve centres, and its treatment by electricity is then only of importance so far as it serves as an illustration of the stimulating or tonic influence of the remedy.

Not unfrequently there is observed in connection with defective power, a partial *anæsthesia* of one-half, usually the left half, of the penis. This may be detected by an electric examination, or by the use of the æsthesiometer. It is frequently associated with a coldness and blueness of the organ, indicating lowered circulation and nerve power. Occasionally, the anæsthesia is quite profound, and as a rule, the sexual weakness is in proportion to the anæsthesia.

In these cases, this numbness appears to be the cause of the impotence, partial or complete, which exists. By the application of the ordinary electric brush to the parts, in the same way that we treat any case of local anæsthesia the numbness is often removed, and the integrity of the sexual functions is restored.

In those milder forms of impotence, where there is simply a premature ejaculation of semen (*emissio intempestiva*) with some diminution of the power of erection, as well as in the more advanced stages, where the desire is capricious and the power of erection pretty well destroyed, it is evident that there must be a degree of paralysis at the root of the disorder, dependent on structural changes in the nerve centres; or else this impaired power or tone in the muscles and erectile tissue may be of a purely local character. In the latter case, the indications are clearly the same as in any other form of local paralysis, and much relief may be obtained by faradization of the ischio-cavernosus and bulbo-cavernosus muscles. But when due to structural change, little can be expected.

When, on inquiry, it appears that the seminal secretion is markedly reduced, not only in quantity but in quality, we may consider that there are undoubted indications for the use of electricity. The galvanic current, especially, has the power of exciting to increased activity the secretory function of various glands, and not seldom accelerates physiological mucous discharges.

We cannot, however, depend upon local treatment alone. The excessive use of sedative narcotics, sedentary habits and general malnutrition from any cause, demand the general constitutional tonic influence of general faradization.

The vesiculæ seminales and the testicles may be affected, and in some

patients very powerfully and sensibly, when one of the poles is applied to the lower part of the spine, and the other to some point on the thigh or against the perinæum. A very good way to affect the male reproductive organs, is to apply one pole firmly against the perinæum and the other upon the testicles.

Faradization of the genital organs should not, usually, be protracted longer than five or ten minutes; galvanization from two to eight minutes. The faradic current would appear to be preferable. Impotence, like seminal emissions, may sometimes be treated by connecting the steel sound introduced into the urethra with one of the poles of the faradic current, thus combining the toning effects of pressure with the toning effects of electricity on the relaxed parts.

PROF. A. A. O'NEIL, OF SAN FRANCISCO.

This surgeon has called attention to the frequency of impotency from *elongated prepuce.* (*Western Lancet*, August, 1873.) The variety he refers to, and which he believes most prevalent, affects, usually, young men from twenty to thirty years of age, married as well as single, and manifests itself by imperfect erections, and that frigidity which, by force of an immoderate ardor, seizes the individual even in the very lap of fruition; or, at best, when coition is attempted, produces an almost instantaneous ejaculation of semen, thus violating some one of the indispensable conditions for the perfection of the procreative act; namely, erection, intromission and ejaculation.

For the relief of this condition he has adopted *circumcision*, with almost constant success; selecting, of course, such cases where other causes are not apparent. Even when the prepuce is perfectly retractile, the operation may be called for, as by exposing the glans, its surface is rendered less sensitive, and hence less liable to be prematurely excited.

A *narrowed urethral meatus* has also been pointed out as a cause of urethral irritation and hyperæsthesia, leading to premature ejaculation and practical impotency. Division by the knife or gradual dilatation by bougies, are the measures called for in such a condition.

PROF. RICHARD M'SHERRY, OF BALTIMORE.

499. R. Fld. extract. ergotæ, f.℥ vij
Acidi phosphorici diluti, f.℥j. M.

A teaspoonful three times a day, in sexual debility.

According to the researches of Prof. LEVI, of Pisa, the therapeutical properties of ergot are due partly to the presence of phosphoric acid, and are increased by such a combination as the above.

PROF. WILLIAM A. HAMMOND

500. ℞. Zinci phosphidi, gr. $\frac{1}{6}$.
Extracti nucis vomicæ, gr. $\frac{1}{2}$j. M.
For one pill, thrice daily.

Loss of memory and impotency from sexual or solitary excess, are very favorably influenced by the phosphide of zinc.

PROF. S. D. GROSS, M. D.

In the temporary impotence which often afflicts young men who have been addicted to masturbation, the assurance of speedy recovery is often sufficient, combined with a tonic, such as:

501. ℞. Tincturæ nucis vomicæ,
Tincturæ ferri chloridi,
Tincturæ cantharidis, āā f.℥ss. M.
Ten drops thrice daily.

Dr. BEGBIE has shown that the oxalic diathesis diminishes the sexual power and occasionally extinguishes it. The phosphatic diathesis acts similarly, but in a less degree.

PROF. ARTHUR GAMGEE, M. D., F. R. S.

This writer is of opinion that sufficient attention is not given to counter-irritation of the spine in debility arising from sexual excess, masturbation, etc. (*Practitioner*, February, 1877.) For this purpose he prefers the *Linimentum Sinapis comp.*, B. Ph., containing the ethereal extract of mezereon and the essential oil of mustard.

When prepared with pure essential oil of mustard, the liniment should possess a pungent odor, and should produce an almost painfully acute sensation in the nostrils when it is smelt.

If properly prepared, a few drops of linimentum sinapis, sprinkled over a pad of cotton-wool ten or twelve inches long and four or five inches broad, will suffice to produce, in a few minutes, pretty intense redness of the skin of the back, accompanied by more or less of the painful burning sensation characteristic of mustard.

As a rule, however, where it is deemed necessary to keep up counter-

irritation of the back for considerable periods of time, it is best to cause the patient to wear a strip of spongio-piline four or five inches broad and of the length desired. In the case of persons with tender skins, the irritation and pain caused by even a very few drops of the liniment, (which is diffused by sprinkling and rubbing one part of the spongio-piline against the other,) is so considerable, that the application cannot at first be continued for many minutes. After a day or two the patient usually becomes able to bear the strip for several hours, and finds that the sensation of irritation is decidedly more pleasurable than painful. If, as frequently happens, the patient, having experienced benefit from previous applications, has sprinkled too large a quantity of the liniment upon the spongio-piline, the irritation produced may be so considerable as to compel an intermission of the treatment for a day or two. The irritated part then remains usually deeply congested and hot for several hours, only very rarely presenting any vesications.

The great advantages of the linimentum sinapis over any other similar preparation lies in the fact that it produces a remarkably active irritation of the sensory nerves of the skin, which subsides, to a great extent, when the preparation is removed, but which can be renewed almost indefinitely without leading to any eczematous, pustular or ulcerative condition.

RÉSUMÉ OF REMEDIES.

Alcoholic Stimulants have, as a general rule, proved of no efficacy in these cases, and by some surgeons are considered distinctly contra-indicated.

Aurum. The chloride of gold, and the chloride of gold and sodium, have a strongly specific power over the sexual organs. Dr. BARTHOLOW believes that premature decline of the sexual power in man may be prevented by their use. When the symptoms complained of are weak and inefficient erections, inability for the reproductive act, due to irritability of the organs, diurnal seminal losses, etc., these troubles may be removed by the gold salts. Coldness and lack of passion in women are more certainly cured by these agents than by any other purely medicinal means. As they are actively poisonous substances, they must be used with caution. The dose of the *auri chloridum* is gr. $\frac{1}{30}$–$\frac{1}{15}$; of *auri et sodii chloridum*, gr. $\frac{1}{20}$–$\frac{1}{10}$ in pill form, thrice daily. *Auri pulvis* is officinal in Great Britain, gr. ss-ij, thrice daily. In plethora of the sexual organs, they increase the frequency of nocturnal seminal losses.

Belladonna. This drug is recommended by Dr. H. H. TOLAND for invigorating the reproductive organs, especially in persons advanced in years, and those debilitated or partly impotent from excessive masturbation. He combines it with nux vomica or with quinine.

Cannabis Indica. The extract of Indian hemp (hasheesh) is said to exert a strongly aphrodisiac power. It is probable that this, like many manifestations of this drug, is confined to certain temperaments in certain surroundings. Those who have experimented with it have rarely recorded any perceptible exaltation of the venereal sense.

Cantharides. Regulated doses of cantharides are often of great service in impotence. As an aphrodisiac it is of little value, as the erections it causes are devoid of pleasurable sensation, but cautiously used as a stimulant it has important applications.

Cimicifuga. It is asserted by BARTHOLOW that this drug stimulates the venereal appetite in man and promotes the menstrual flow in women. On account of these aphrodisiac effects, he recommends it in those cases in which the organs are relaxed, the erections weak, and the seminal discharges feeble, premature and liable to occur on slight excitement. It is important that preparations from the fresh root be employed.

Conium. The hemlock has an ancient reputation as a sexual tonic. Combined with iron, in the formula suggested by the late Professor WM. TULLY, M. D., of Yale College, Dr. C. BAKER has lately employed it in various cases of genital exhaustion with good results. (*Cinn. Medical News*, July, 1875.)

SYRUPUS CONII ET FERRI SESQUIOXIDI.

502. ℞. Ext. conii maculati, ℥ v.
Extracti ferri sesquioxidi, ℥ v ad x.
Syrupi tolutani, f. ℥ ij ad iv.
Olei cinnamomi,
Olei gaultheriæ procumbentis, āā ♏ x.
Sacchari officinalis, ℥ ij ad iv.
Spts. vini gallici, ℥ ij ad viij.
Aquæ fontanæ, q. s. ut fiat mist. ℥ ij. M.

A tablespoonful for a dose. This much contains not quite gr. v of the extract of conium. The dose may be doubled if required. The taste is rather pleasant, and the appetite is increased by it.

Damiana. This product of a Mexican species of *Turnera* has recently been much lauded as a tonic of debilitated sexual organs. The dose is f. ℥ j of the fluid extract, three times daily. The testimony regarding its value is conflicting, and it has certainly failed completely in a number of cases, and seems to have succeeded chiefly when combined with steel, strychnia, electricity and other agents which, without it, would probably have led to the favorable result claimed. It is liable to produce digestive disorders, which can be partially obviated by combining it with cinchona and sherry wine. (*New Preparations*, Jan., 1877.)

Dioscorein. This active principle of *dioscorea villosa*, the wild yam, is stated by Dr. EDWARD R. MAYER (*Hints in Specific Medication*, 1876, p. 18,) to give marked increase in tone and greater sexual vigor to the male genital organs. He employs one-tenth of a grain of dioscorein, rubbed up with sugar, and continues it in this dose, for a considerable time. He does not consider it an aphrodisiac, but a tonic.

Iodinium. Gr. j, in syrup, thrice daily, is stated by Dr. SCUDDER to be a stimulant and tonic to the genital organs.

Matico. As an alterative stimulant to diseased mucous membranes, matico is much employed in Peru as an aphrodisiac. It is probably especially useful in cases connected with chronic prostatitis and with abnormal urethral irritability.

Nux Vomica. See Strychnia.

Oleum Morrhuæ.

503. ℞. Olei morrhuæ,
Syrupi zingiberis,
Mucilag. acaciæ, ää f.℥ij.
Olei caryophylli, gtt. vj. M.

A tablespoonful three or four times daily.

Recommended by Dr. H. HARTSHORNE in the wasting which accompanies impotence from spermatorrhœa.

Phosphorus. In many cases of impotence, no remedy is more efficient than phosphorus. It is, of course, adapted to those which are functional in origin, not the result of organic defect. According to Mr. J. A. THOMPSON, it is important that it be given in small tonic doses, gr. $\frac{1}{50}$–$\frac{1}{30}$, for a long time, and not in larger quantities. Even this, for some constitutions, is a large dose. Its results are often flattering at first, but not permanent, and the patient must be strongly admonished to use his regained power with the utmost moderation. (*British Medical Journal*, 1873.)

Polygonum Punctatum. Smart-weed or water-pepper, f.℥ ss–j of the tincture, is spoken of by Dr. J. W. HOWE, of New York, as a stimulating aphrodisiac.

Sinapis. The special stimulant action of mustard is of decided power in atonic impotence. Mr. GAMGEE applies it to the spine over the origin of the genito-crural nerves. (Page 368.) Dr. SAUVAGES recommends that the penis and testicles be immersed for twenty minutes daily in a hot and strong infusion of mustard seed. He reports restoration, by this means, of genital power which had been forfeited for years by early excesses.

Strychnia. As a general nerve tonic, strychnia or nux vomica is indispensable in the treatment of impotence from neurasthenia. It is probable that it is the most generally efficacious agent for that purpose known to the profession; it acts, however, more through a general impression on the system than as an aphrodisiac.

Zinci Phosphidum. This preparation is highly lauded by HAMMOND and others. It may be given gr. $\frac{1}{10}$–$\frac{1}{2}$, combined with gr. ss of nux vomica.

GENERAL EXTERNAL MEASURES.

Counter-irritation is a means of old renown in the treatment of impotence, and has at times been used to the serious detriment of the patient. Flagellation and urtication are spoken of by classical writers, and have always been known to the vulgar. Of the local stimulants which are most successful and free from danger, mustard, tincture of cantharides and turpentine, are the most

reliable. Frictions with horse-radish are also spoken of. Dr. GALL claimed excellent results from applying counter-irritants to the *cerebellum* rather than the lower spine, believing that by so doing he stimulated the nerve-centres which control the sexual faculties. The method deserves trial in appropriate cases.

Douches. The alternate use of hot and cold douches to the organs, perinæum and lower spine, each fifteen minutes at a time, has been praised as an effective revulsive in sexual debility. They may also be directed to the cerebellum.

Electricity has been fully considered above. (Page 365.)

Massage, especially the lighter forms, as described page 151, so as to excite a flow of blood to the pelvic muscles and organs, is esteemed in the Orient as an efficient means of repairing powers exhausted by habitual excesses.

MASTURBATION. (SELF-ABUSE, ONANISM.)

DR. A. JACOBI, M. D., OF NEW YORK.

The commencement of the habit in young children and even infants, must be carefully watched for. The treatment in these cases is indicated by the causes which lead to the habit. For excessive phimosis, circumcision; balanitis and balanoposthitis, cleanliness and astringents; stone and gravel, mostly alkaline salts, the majority being uric in the beginning; vesical catarrh, alkalies, tannin, cubebs, hyoscyamus, injections, according to circumstances; constipation, its appropriate treatment, dietetic, anti-rachitical, roborant, laxative (injections); worms, anthelmintics; the acquired nervous derangement, bromide of ammonium or potassium. Dr. ANSTIE administers the bromide of potassium rather in "fierce activity of mind and body" than in the effects of masturbation. *Lupulin* and *camphor* have proved very serviceable. Regulations as to feeding include the avoidance of all substances irritating to the bladder. Regular bathing and constant occupation under careful supervision, are urgent requisites. The children must not be permitted to sit on the floor too long, When the symptoms of an attack exhibit themselves, take them up and occupy their body and mind. Force is often required. They must not remain in bed after waking up. Infibulation, as advised by CELSUS, might be replaced by an artificial sore on the surface of the penis. At all events, there are many cases which exert to the utmost, both the watchfulness of the attendants and the ingenuity of the medical adviser.

Important amongst the therapeutical indications are those referring to the general influences produced upon the whole nervous system by the constant irritation of a large number of peripheric nerves. The symptoms of irritation are soothed and relieved by the above-mentioned sedatives; those of masturbation, and exhaustion resulting therefrom, by a general roborant treatment and nerve tonics, amongst which Dr. JACOBI places *strychnia* foremost, *iron* and *arsenic* next. The affections in which they are principally indicated are neuroses, either of the nerve centres, such as epilepsy and chorea magna, or of a peripheric nerve, or a number of nerves, or nerve complexes. The form in which peripheric nerves are generally affected, is that of hyperesthesia or neuralgia, terms which are not used as identical, because medical men have agreed to employ the latter where the sensations are changed for a longer term, or where a positive lesion can be detected in the nerve itself.

Strychnia is remarkable for speedily restoring the impaired nerve power, provided the doses are not too small, and the mode of administration the appropriate one. A child of five years ought not to take less than $^1/_{24}$ part of a grain in the course of a day, of either the sulphate or nitrate. Larger doses are frequently not only tolerated but required. The best mode of its administration, however, is not by the mouth, but subcutaneously. A single daily dose of a twentieth part of a grain of the sulphate of strychnia in water, will fully suffice. (*American Journal of Obstetrics*, June, 1876.)

SIR. JAMES PAGET.

In the mental treatment of masturbation, it is especially important that the groundless fears of the patient as to the terrible results of the habit be dispelled. Our author says:

"I believe you may teach positively that masturbation does neither more nor less harm than sexual intercourse practiced with the same frequency in the same conditions of general health and age and circumstances. Practiced frequently by the very young, that is at any time before or at the beginning of puberty, masturbation is very likely to produce exhaustion, effeminacy and over-sensitiveness and nervousness, just as equally-frequent copulation, at the same age, would probably produce them. Or, practiced every day, or many times in one day, at any age, either masturbation or copulation is likely to produce similar mischiefs, or greater. And the mischiefs are especially likely or

nearly sure to happen, and to be greatest, if the excesses are practiced by those who, by inheritance or circumstances, are liable to any nervous disease—to spinal irritation, epilepsy, insanity or any other. But the mischiefs are due to the quantity, not to the methods, of the excesses; and the quantity is to be estimated in relation to age and to the power of the nervous system. I have seen as numerous and as great evils consequent on excessive sexual intercourse as on excessive masturbation; but I have not seen or heard anything to make me believe that occasional masturbation has any other effects on one who practiced it than has occasional sexual intercourse, nor anything justifying the dread with which sexual hypochondriacs regard the having occasionally practiced it."

(These views of this very eminent surgeon, as to the comparative harmlessness of masturbation, are not adopted by many other very experienced observers. See under Impotence.)

DR. C. B. MILLER, OF INDIANA.

This writer gives the following directions (*American Practitioner*, May, 1877):

It is indispensable that the habit of solitude, and the inclination to indulge the imagination, be broken up, and some healthy, active employment substituted, and the victims compelled to mingle with others and go into society.

Plain, substantial food must be insisted upon, and oysters, eggs, chestnuts, wines, spices, etc., avoided. The patient should sleep on a hard mattress, lightly covered as the state of the atmosphere will admit, retire early, and rise immediately on awaking in the morning. The bowels must be carefully regulated, as the presence of scybala in the rectum frequently excites the propensity. Tonics should be given when indicated, astringent injections used to relieve leucorrhœa, or applications to the prostatic portions of the urethra, and any eruptions about the genitals appropriately treated and the utmost cleanliness enforced. Running sewing-machines, dancing and horse-back riding should be interdicted.

Aside from these general directions, moral treatment is about the only kind that promises success, though it may be aided by the administration of camphor, chloral, the bromides, belladonna and digitalis. From a pretty extensive experience with the remedy, he is inclined

to attach more importance to *digitalis*, as an anaphrodisiac, than to any other medicine.

DR. HENRY P. WENZEL, OF LOUISVILLE.

504. ℞. Tinturæ pulsatillæ (German), f. ℥ ij.
Aquæ, f. ℥ iv. M.
A teaspoonful four times daily.

This herb, in the dose above given, is said by this writer to be superior to bromide of potassium. The pulsatilla lessens sexual excitement but does not diminish sexual power. He claims that, after using it a week, the onanist loses the desire of practicing the hurtful habit. (*Louisville Medical News*, March, 1877.)

OPERATIVE PROCEDURES.

Castration.—In certain very obstinate cases, castration, at the request of the patient, has been resorted to. It is a last resort which, however, is probably never necessary.

Clitoridectomy.—In the female, the *removal of the clitoris* strongly advocated and practiced some years ago by Mr. I. BAKER BROWN, of London, is undoubtedly occasionally a simple and efficient means to check the habit. When the practice threatens injury to the intellect, and has not yielded to ordinary medication and remonstrance, the organ should, according to this authority, be removed, the excision including the corpus cavernosum clitoridis, and the major portion of the erectores clitoridis. The profession, however, has not, as a body, accepted the propriety of this operation, partly because in some instances it has signally failed to break the habit, partly because, even if successful, its after consequences, in reference to the marital relations, might be most unpleasant. The simpler operation of infibulation would be positively efficacious, and leave no mutilation behind it.

Circumcision.—Where the prepuce is long and a source of irritation, circumcision should be performed without hesitation. It must not, however, be regarded as a preventive of or even a safeguard against the habit. Jews frequently masturbate.

Infibulation.—The most valuable of all operative preventives is infibulation. This was in common use in ancient Rome, both to prevent masturbation and coition. The best method is to pierce the prepuce, close to the extremity of the glans, with a sharp-pointed silver

wire, the ends of which should then be firmly fastened together, and the loop thus left in the part. It rarely causes any troublesome irritation. It may be practiced with equal success on girls, the *fibula* being made to penetrate the labia major.

Scarification.—A sore may be established on the prepuce or clitoris which will temporarily prevent handling the organ.

ORCHITIS (EPIDIDYMITIS.)

DRS. VAN BUREN AND KEYES, OF NEW YORK.

In mild cases, rest on the back with elevation of the testicle, aided by a light, hot flaxseed poultice and a laxative, are sufficient.

In severe cases, rest on the back and elevation of the testicle above the abdomen are indispensable. To effect this, apply a bandage around the waist, and fold a large handkerchief in the shape of a triangle; place the base of the triangle under the scrotum, tie one acute angle on each side to the waistband, and bringing the right angle over the testicles and penis, pin it to the waistband; sew a tape to that portion of the sling immediately under the scrotum, carry it between the nates and attach it to the waistband.

Having arranged this, put the patient to bed, and envelop the testicle from the start with a *tobacco poultice.*

505. ℞. Fine-cut tobacco, ℥j.
Hot water, f℥x.
Bring to a boil while stirring briskly, and add:
Powdered flaxseed, q. s.
To bring to the proper consistency.

Apply to the part as hot as can be borne, and cover with a piece of oiled silk. Renew every eight hours. Ordinarily, the testicle will be nearly painless in a few hours.

When the pain is exceptionally acute, and the cord is strangulated, ten to fifteen leeches above the groin, along the course of the cord, will often calm the pain as if by magic. When the pain is owing to the extreme distension of the tunica vaginalis with fluid, a puncture to let this out is followed by striking and immediate relief.

Strapping the testicle is difficult to perform in a proper manner, but deserves more favor than it has received at the hands of surgeons.

The hardness of the testicle, which is apt to remain ordinarily, disappears of itself in a few weeks. Its departure may be hastened by keeping the testicle constantly in a suspender covered by oiled silk, so as to keep up heat and moisture. Mild mercurial ointment sometimes hastens the absorption.

No internal medicine exerts much influence on the disease. Urethral injections should not be used, but other gonorrhœal treatment may be continued, if called for.

In syphilitic orchitis, a thorough anti-syphilitic treatment is demanded, including large doses of *iodide of potassium*.

DR. ROBERTS BARTHOLOW.

506. ℞. Ammonii muriat., ʒ ij.
Spir. vini rectif.,
Aquæ āā f.ℨ ij. M.
For a lotion.

Cloths moistened with this solution, frequently applied, form an excellent discutient application. When the acute symptoms have subsided, but the swelling of the testicle remains, it may be removed by painting with the dilute *tincture of iodine*, or by applying a solution of the *oleate of mercury*:

507. ℞. Hydrargyri oleati, ℈j–ʒ ij.
Morphiæ sulphatis, gr. viij.
Acidi oleici, f.ℨ j. M.
For local application with a brush.

MR. GEORGE COWELL, LONDON.

The scrotum over the inflamed gland is wet, and the solid nitrate of silver is equably applied over the whole testicle. A suspensory bandage and rest are enjoined. Pain disappears in from two to six hours, and in a few days the patient is well. Of course, such general treatment as is needed is ordered. (*Practitioner*, February, 1872.)

MR. H. G. KNAGGS, ENGLAND.

This gentleman, in the *British Medical Journal*, November, 1875, reports a method of treating orchitis which, he says, he has for many years found very effective. It consists in the more or less constant

application, while the patient is resting, of a lotion of tinctura arnicæ and water (one part of the former to six of the latter) to the affected organ; secondly, in rubbing in an embrocation composed of one-third, or even one-half, tincture of arnica and soap liniment, two or three times a day, along the course of the spermatic cord; and thirdly, in the internal administration of seven-drop doses of tincture of arnica, combined, when there is febrile disturbance, with two-and-a half drop doses of Fleming's tincture of aconite and acetate of ammonia. This simple treatment, he says, generally cures the patient in a fortnight or less.

MR. C. H. MOORE, M. R. C. S., MIDDLESEX HOSPITAL, LONDON.

The testicle is first immersed in water as hot as can be borne, and kept in it from ten to fifteen minutes, immediately to be followed by a stream of cold water poured over it from a height for five minutes. The latter causes a certain amount of itching pain, and, by contracting the dartos, corrugates the scrotum, speedily diminishing the size of the testicle, with subsidence of the inflammation and pain, the patient experiencing relief in a very short time. The hot and cold water may have to be repeated two or three times a day for a few days, but frequently the patient is so far recovered in the course of four and twenty hours as to be able to follow his usual avocation without any inconvenience, requiring no further treatment beyond the continuance of the suspensory bag.

PROF. RICORD, OF PARIS.

508. ℞. Emplastri hydrargyri,
Extracti conii, āā ʒ ijss.
Extracti opii, gr. xv. M.

Spread on a piece of leather of convenient size, and apply in cases of orchitis or subacute bubo.

PROF. DIDAY, OF LYONS.

509. ℞. Extracti belladonnæ, ʒ iss.
Tincturæ iodinii, f. ʒ iss. M.

Moisten the extract with fifteen to twenty drops of water, and add the tincture. Spread on the skin by a camel's-hair pencil.

In consequence of its adhesion to the skin, it acts more effectually than an ointment. It is particularly useful in the treatment of epididymitis when the acute inflammation has been appeased by bleeding and baths.

DR. WILLIAM H. HIGGINS, OF ENGLAND.

This gentleman states (*Lancet*, 1876,) that he has invariably found one of the following methods, combined with saline aperients, etc., bring about a rapid cure.

Whenever the tenderness admits of it, whatever the extent of inflammation and swelling, he immediately proceeds to strap the inflamed testicles; but to insure effectual support to the distended vessels, deep and superficial, by the equable pressure and intimate adherence of the plaster, he first carefully isolates the swelled testicle, and renders the scrotum tense over the tumor by tying a strong strip of lint above it, leaving a rounded swelling, with a kind of pedicle. This strapping (not the lint) is replaced from time to time, as it becomes loose and wrinkled, from subsidence of the swelling. The whole scrotum is also well supported. This method generally permits return to work on the spot.

When, from delay and neglect, the strapping cannot at first be borne (which rarely happens), he at once applies *extract of belladonna* mixed with sufficient simple ointment to enable it to spread on lint (the extract is soft enough alone in warm climates) to the inflamed surface. Light pressure with a bandage, rest, support to the scrotum, and constitutional measures, as aids to the anodyne, speedily remove the pain. The belladonna may be renewed as often as it becomes dry. When the first pain and tenderness are somewhat alleviated, he resorts to the strapping as described above, and conducts the case to a certain favorable termination.

These methods, contrasted in practice with the use of the knife, or the slow and tedious remedies usually employed, have everything in their favor—remove the pain at once, permit speedy or even instant return to work, and insure rapid cure in a humane manner.

DR. L. D. WATERMAN, OF INDIANA.

This writer, in the *American Practitioner*, 1877, claims excellent results with the following:

510. ℞. Tincturæ iodinii,
Aquæ ammoniæ,
Tincturæ opii,
Olei olivæ, q. s. M.

The iodine and ammonia are added in quantity just sufficient to be

bearable, and only cause half-blistering of the skin, or exfoliation with a stinging sensation for a short time after application. Thus graduated to the supposed endurability, the free application of it is made to the entire surface of the scrotum, and the woolen cloth saturated with the liniment, with which it is hourly (if possible) applied, is wrapped around the scrotum, and left there continually. The pain ceases, sometimes, in three hours, always within twenty-four, and the effusion is correspondingly rapidly absorbed without tapping.

MR. CURLING, OF ENGLAND.*

The use of *ice* in orchitis, so highly esteemed by this eminent surgeon, seems to have fallen into unmerited neglect. His plan of proceeding is to keep the patient in bed, with the testicle well supported by a handkerchief, or, what is better, by a crutch-pad applied transversely beneath the testicles, the piece of bandage attached to each end of the pad being passed above the crest of the ilium and secured around the body. The ice is to be applied to the testicle by enclosing it in a small bladder or in an india-rubber bag with a somewhat narrow neck. This may be suspended from a cradle placed over the body, and the cold must be sedulously maintained by frequent renewal of the ice. The patient should be provided with two bladders or bags, one to take the place of the other as the ice melts. The effects of the application are remarkable. The scrotum becomes blanched, shrunk and corrugated; the pain and heat are entirely removed, and in a few hours the enlargement of the gland is found much diminished.

DR. A. RICHARDSON, M. R. C. S., OF ENGLAND.

511. R. Extracti belladonnæ, ℥ij.
Glycerinæ, f.℥ss.
Aquæ, f.℥j. M.
For local use.

This mixture is about the consistence of cream, and should be laid on thickly over the whole scrotum, a piece of lint, moistened in the same applied and the testicle supported in a handkerchief, slingwise, which may be fastened to a second tied round the loins. It gives rapid and complete relief, the pain in the loin disappearing in about six hours, while it does not prevent the patient from going about his business. (*Lancet*, 1876.)

**Diseases of the Testes.* Fourth edition.

DR. JOHN KENT SPENDER, OF LONDON.

This author (in the *Medical Examiner*, August, 1878,) calls attention to the possibility of curing orchitis without surgical interference. The plan he adopts is to administer antimony in small and repeated doses for at least twelve to fourteen hours. He narrates a case of a young man who had received a blow on the left testicle, and who was seen a few days afterwards. Recourse was had to hot local applications, and a draught containing:

512. ℞. Vini antimonialis, ♏ xx.
Tincturæ opii, ♏ ij.
Aquæ menthæ, f. ℥ j. M.
This amount every hour for twelve hours, and then at longer intervals.

Pain was relieved simultaneously with the establishment of a profuse diaphoresis. Within three days the man was virtually well.

The same mode of administering other drugs may be adopted with benefit, as in many cases success depends upon keeping the medicine constantly in the system.

DR. EDWARD WARREN, OF BALTIMORE AND PARIS.

This surgeon, late chief of the surgical staff of the Egyptian army, states, in the *Lancet*, April, 1876, that after an extensive experience both in hospital and private practice, he has abandoned the employment of ice, poultices, punctures, leeches, etc., in the treatment of acute orchitis, in favor of the following simple plan, which has proved pre-eminently successful.

By means of an ordinary hypodermic syringe, inject beneath the tunica vaginalis from one-sixth to one-quarter of a grain of morphia, with one-hundredth of a grain of atropia in solution, and then strap the organ firmly with adhesive plaster. Place the patient upon his back, elevate the pelvis, support the testicle, and administer:

513. ℞. Potassii bromidi, ℈ j.
Tinct. gelsem. semper., gtt. xv.
Extr. fld. ergotæ. f. ℥ j.
Aquæ cinnamomi, f. ℥ ss. M.
This amount every third hour.

Repeat the hypodermic injection of the morphia at intervals of eight hours, if necessary, until a grain has been administered, and readjust the adhesive plaster as the swelling and sensitiveness diminish.

In a large majority of cases a decided improvement will manifest itself within three or four hours, but should no amelioration ensue, discontinue the hypodermic injections, and supplement the treatment by the application of a narrow blister on either thigh, immediately over the femoral vessels.

SPERMATORRHŒA.

HYGIENIC MEASURES.

All authors agree that in this complaint the medical treatment must be actively supported by proper hygienic measures to insure any degree of success.

The *food* should be generous and nutritive, easily digested, but plain. Highly-spiced dishes, tea, coffee and most stimulants should be avoided, especially at and after supper. Very little fluid should be taken at tea, and none after, as the filling of the bladder strongly predisposes to emissions. Tobacco and opium must not be used in any form.

The patient should sleep in a cool, well-ventilated room, on a hard bed by himself, with but light bed-covering, and avoid sleeping on his back by tying a towel around the waist with a knot over the spine. He should sedulously avoid every form of venereal excitement, whether social, by reading, thought or conversation.

Every morning he should sponge the parts in cold water, or, what is better, take a cold sitz-bath. This should not be taken before retiring, as the reaction brings an excess of blood to the part and predisposes to emissions. Cold water enemata are often very salutary.

The bladder should be frequently emptied, especially on going to bed at night, and again at four or five o'clock in the morning. With many patients it is during the morning nap that the emission occurs, owing to the pressure of the urine accumulated during the night. The urine should always be tested, and if found acid, alkalies should be administered to counteract its irritating qualities.

The bowels should be maintained in a laxative condition by moderate doses of salines. Not unfrequently the pressure of retained fæces in the rectum is an exciting cause of emission. Irritation in the rectal

canal, from any other source, as hemorrhoids, ascarides, etc., will have the same effect, and must be treated as occasion demands.

Moderate daily exercise in the open air, or in a cool, well-ventilated room, is essential. Both walking and riding, especially the latter, are, however, contra-indicated. Cases of spermatorrhœa, brought on by the friction of the saddle, are not infrequent, Those varieties of exercise which bring into play the muscles of the upper extremity and erector-spinæ mass, are particularly desirable (rowing, the pulley, quoits, bowling, etc.)

NOCTURNAL EMISSIONS: MECHANICAL PREVENTIVES.

In most cases nocturnal pollutions are accompanied by erections, complete or partial. When this is the case, mechanical preventives are often useful.

Dr. MONIERE, of Paris, has invented a very ingenious apparatus, to which he has given the name of *electro-medical alarm*. A small, very light ring is attached in front of the pubis by cords; two cords make this ring communicate with the poles of a pile; the penis is introduced into the ring so that contact takes place, but no kind of pressure; on the contrary, as soon as the penis becomes erect, the smallest pressure makes the battery to work. In order not to disturb neighbors, the bell is made very feeble, but then it is necessary that an india-rubber tube should make the bell communicate with the ear. When the patient commences to use this instrument, the spermatorrhœa almost altogether disappears gradually, and his general condition greatly improves. (*The Doctor*, June 1st, 1877.)

The use of *spermatorrhœal rings* is occasionally valuable. They are armed on the inner side with a projecting point, leaving sufficient space for the penis when flaccid, but as soon as it enlarges the point presses painfully and the patient awakes. A simple arrangement keeps them in place at night.

A *spermatorrhœal truss* has been lately devised, which, in certain cases, may prove of advantage.

GENERAL TREATMENT OF SPERMATORRHŒA.

PROF. S. D. GROSS, M. D., OF PHILADELPHIA.

Spermatorrhœa may and may not be associated with impotence; but it is always connected with genital weakness.

The first indication for treatment is to ascertain the probable cause. It may, like impotence, be induced by the irritation of an elongated or constricted prepuce; by an accumulation of smegma under the prepuce; by narrowed meatus urinarius; by stricture of the urethra; by stone in the bladder; by hemorrhoids; fissure of the anus; ascarides in the rectum; obstinate constipation; excessive venery; but the great cause is *masturbation.*

In mild cases, a proper regulation of the diet and bowels, cold bathing, sleeping on a hard mattress, and the removal of the exciting cause, usually suffice. When the parts are morbidly sensitive, leeches may be applied to the perinæum, and the following urethral injection used:

514. ℞. Plumbi acetatis,
Pulv. opii, āā gr. iij.
Aquæ, f.℥j. M.
Use for an injection twice daily.

When the disease is fully established, more energetic measures are required. In many cases, *cauterization* is the best means, with solid nitrate of silver, conveyed to the spot of greatest sensitiveness in the urethra, by means of a porte-caustique. An application of five or ten seconds, once a week, until the morbid sensibility is destroyed, is sufficient. Occasionally, marked relief arises from cold enemas, repeated twice in the twenty-four hours. Leeches or a blister to the perinæum, may be called for if the local excitement is unusually great. When the morbid sensibility of the urethra is very extensive and persistent, the following may be employed

515. ℞. Argenti nitratis, gr. ij.
Pulveris opii, gr. v.
Aquæ, f.℥j. M.
Use twice daily for a urethral injection, to be forced back as far as possible, and remain two or three minutes in the canal.

The daily insertion of a full-sized bougie, for half an hour at a time, is sometimes an efficient means. The morbid erections are to be controlled by anodyne enemata, or the following pill at bed-time:

516. ℞. Pulv. opii, gr. j.
Extract. belladonnæ, gr. ss.
Ant. et potassæ tartratis, gr. ¼–½. M.
For one pill.

Sexual abstinence and, of course, cessation of masturbation, must be positively enjoined.

Should there be reason to believe that the emissions are dependent on cerebellar irritation, the nape of the neck should be leeched and blistered. As a sexual sedative, one of the best is:

517. ℞. Potassii bromidi, gr. xx–xxx.
Tincturæ aconiti, gtt. v.
Aquæ camphoræ, f.℥ ss. M.
This amount three times daily.

The following may be also used with excellent effect:

518. ℞. Ammonii bromidi, ℈j.
Tincturæ cypripedii, ʒj. M.
This amount thrice daily.

519. ℞. Elixir cinchonæ, ʒiss.
Acidi nitrici diluti, gtt. viij.
Strychniæ sulphatis, gr. $\frac{1}{16}$. M.
This quantity to be taken three times daily.

Also,

520. ℞. Morphiæ sulphatis, gr. ½.
Butyri cocoæ, q. s. M.
For a suppository, to be introduced into the bowels at bed-time.

DRS. W. H. VAN BUREN AND E. L. KEYES, OF NEW YORK.*

With constant attention to hygienic and local measures, the use of the steel sound and electricity will give tone to the parts. The use of a local astringent to the parts is often of marked advantage.

521. ℞. Tannici acidi, ʒj.
Glycerinæ, q. s. M.
Make a stiff paste.

This is to be inserted into a "cupped sound" (an ordinary steel bougie with several depressions, about as large as a pea, along its sides,) and the sound, previously well oiled, rapidly carried down the urethra until the cups rest in the prostatic sinus. Here it is retained from one to five minutes, thus melting off more or less of the tanno-glyceral paste. This should be repeated twice weekly. Should this fail, prostatic injections, with the deep urethral syringe may be used, of a solution of nitrate of silver, not stronger than gr. v–x to the ounce. The use of the fused nitrate of silver is not justifiable.

Nocturnal Emissions.—When such emissions do not exceed three a

Diseases of the Genito-Urinary Organs. New York, 1876.

week they should be disregarded, as they are probably physiological; when more frequent, the usual hygienic and general means must be adopted, and also certain special measures. The patient should develop his muscular system, and fatigue himself with physical labor. Dry frictions and the cold douche in the morning are beneficial. He should sleep on a hard bed, lightly covered. The stomach should not be full on retiring, and the bladder should be thoroughly emptied the last thing at night. To prevent lying on the back, in which position pollutions are particularly apt to occur, a towel, with a hard knot over the spine, should be fastened around the waist. Bromide of potassium, camphor and lupulin may be given internally with strychnine and a mineral acid. Locally, decided advantage may be derived from the gentle use of the steel sound, or of the "cupped sound" with tannin (as above described.) If the pollutions are traceable to a sensitive glans penis, circumcision should be performed.

PROF. H. H. TOLAND, M. D., SAN FRANCISCO.*

Spermatorrhœa is very generally the result of masturbation, and to its cure the cessation of this habit is absolutely necessary. The nitrate of silver treatment, so highly commended by LALLEMAND, has proved an utter failure in the hands of Dr. TOLAND. He has never seen the slightest benefit from the port-caustique. As a tonic to act specifically upon the genital organs, in cases of local atony, he prefers this combination:

522. ℞.	Quiniæ sulphatis,		ʒj.	
	Pulveris rhei,			
	Extracti nucis vomicæ,	āā	ʒss.	
	Extracti belladonnæ,		gr. xij.	M.

For thirty pills. One four times a day.

In cases accompanied with daily emissions, with debility, constipation and indigestion, if the above pills do not produce the desired effect, the following combination may be prescribed:

523. ℞.	Extracti sennæ fluidi,		f.ʒ iij.	
	Tincturæ nucis vomicæ,		f.ʒ ix.	
	Tincturæ belladonnæ,		f.ʒ ijss.	
	Tincturæ aconiti,			
	Acidi hydrocyanici,	āā	f.ʒ iss.	M.

A teaspoonful four times a day.

* *Lectures on Practical Surgery*, 1877.

Such patients should have a nourishing diet and avoid indigestible food. They should be temperate, take moderately active exercise, and observe the usual laws of health.

In cases where there is excessive local irritability, with good general health, Dr. TOLAND, under all circumstances, prescribes the following mixture:

524. ℞.	Potassii bromidi,		℥ v.	
	Extracti sennæ fluidi,		f.℥ iij.	
	Tincturæ belladonnæ,		f.℥ ijss.	
	Tincturæ aconiti radicis,			
	Acidi hydrocyanici,	āā	f.℥ iss.	
	Syrupi simplicis,		f.℥ ijss.	M.

One teaspoonful four times a day.

Under this treatment, great improvement will, as a rule, be perceptible in a short time.

DR. MALLEZ, OF PARIS.

The alkaline bromides, in the opinion of this writer, deserve the highest place. (*Le Mouvement Medical*, June, 1873.)

525. ℞.	Potassii brómidi,		℥ j.	
	Syrupi tolutani,		f.℥ j.	
	Aquæ,		f.℥ ix.	M.

A dessertspoonful four times a day.

The administration of the bromide should precede any local treatment, and may be continued from eight days to two months without harm.

After the lapse of ten or twelve days, *continuous currents* should be applied, though there is some difference of opinion in regard to the manner in which they should be applied. M. MALLEZ himself prefers to make use of descending currents, passing down the whole length of the spinal cord, from the occipital to the lumbar region, the source of the electricity being from eight to ten elements of a Gaiffe's pile, with chloride of silver. After using this for eight or ten days, the direction of the current may, with advantage, be reversed.

The application of *cold-water douches* to the belly should not be indiscriminately recommended, as they occasionally seem to excite rather than to repress the discharges. In order to subdue inflammation of the prostatic portion of the urethra, and to diminish its sensitiveness, the best means are, in the first place, the introduction of *bougies*, as in the preparatory treatment of lithotrity, but with this

difference, that a longer interval must be allowed to elapse between each operation, lest the reversed result to that hoped for be obtained. The ointments containing belladonna, or morphia, or iodine, are utterly valueless. Dr. MALLEZ has, however, observed benefit result from the injection of *carbonic acid*. The mode in which this is effected is by the use of two flasks, one containing hydrochloric acid, and the other fragments of marble, united by a piece of india-rubber tubing; a second piece of tubing, having an elastic ball, in which the carbonic acid is closed up, is connected with a catheter, a stop-cock regulates the supply, and the part to which the stream of gas is applied, is determined by the depth to which the catheter is introduced into the urethra. M. MALLEZ has a high opinion of *suppositories*, and recommends one composed as follows:

526. ℞. Morphiæ muriatis,
Pulv. stramonii, āā gr. viij.
Butyri cocoæ, ℥ij. M.
Make into eight suppositories.

Suppositories of iodoform are also useful. Purgatives must be given for constipation, and anthelmintics, if required.

DR. J. J. KIMBERLIN, OF CINCINNATI.

This physician, believing that in most cases spermatorrhœa is due to an excessive sensibility of the urino-seminal vessels, especially of the prostatic portion of the urethra, has succeeded by external treatment with anodyne ointments:

527. ℞. Extracti aconiti solidi, ʒij.
Extracti conii, ℥j.
Then add
Adipis, ℥ ss-j. M.
For an unguent.

With this the perinæum is thoroughly rubbed twice or three times a day (say on rising and retiring) for a month or six weeks. The beneficial effects in suitable cases should be visible in a week or two. As some persons are extremely susceptible to the effects of aconite applied to the skin, the weaker form of the ointment should be used in small quantities at first, and increased in strength as rapidly as the patient can bear it.

DRS. GEORGE M. BEARD AND A. D. ROCKWELL.

It is hardly necessary to say that no one method of *electrization* will answer in all cases of spermatorrhœa and seminal emissions. A decidedly harmful method of procedure is that by strong galvanization of the ejaculatory ducts, or the parts in their immediate vicinity, by means of the insulated catheter electrode.

It is true that if employed with great caution, and with a current of very feeble power, no harm may result. Currents of considerable electrolytic power, even, may frequently be borne without any after ill effects; but it is equally true that these same applications, whether weak or strong, have in numbers of instances been followed by profound and lasting irritation.

In lieu of this procedure, and in addition to the external methods of treatment, these authors are in favor of the direct application of the faradic current to the urethra, and on the same principles and to meet the same indications, that the occasional introduction of the ordinary catheter is attempted. Mechanical pressure alone tends to unload the congested capillaries, and very decidedly to lessen the sensibility of the urethral nerves, and when combined with the vibratory action of the faradic current, its good effects are markedly increased.

DR. ROBERTS BARTHOLOW.

528. ℞. Oleoresinæ capsici, ℥j.
Extracti aquosæ ergotæ ʒij. M.

Make twenty pills. One three times a day, in impotence and spermatorrhœa from deficient tone.

Spermatorrhœa and impotence dependent on a relaxed state of the seminal vesicles may be greatly improved by *arseniate of iron:*

529. ℞. Ferri arseniatis, gr. v.
Ergotæ extracti aquosæ, ʒss. M.

Make thirty pills. One, night and morning.

When there is a condition of plethora with spermatorrhœa, iron is contra-indicated. The appropriate remedy then is the *bromide of potassium.* It is best given in full doses, gr. xx–ʒj, at night. When the genitalia are relaxed, the emissions flowing without force, and without a distinct dream and orgasm, *belladonna* is most useful.

DR. D. CAMPBELL BLACK, M. R. C. S., OF GLASGOW.

This author invariably treats spermatorrhœa with narcotics and tonics. He claims for camphor, opium, belladonna and hyoscyamus the first rank as narcotics; and for a tonic there is nothing equal to the *tincturi ferri chloridi*, in *large doses*. His prescriptions are:

530. ℞. Pulveris camphoræ, gr. xviij.
Pulveris opii, gr. xij.
Extracti hyoscyami, q. s. M.
Make twelve pills. One every night.

531. ℞. Tincturæ ferri chloridi, f.℥j.
Forty to sixty drops thrice daily in a winegalssful of water.

He considers hyoscyamus and belladonna equally valuable.

PROF. A. P. LANKFORD, ST. LOUIS.

If the spermatorrhœa can be traced to irritable prostate, this writer (*Medical Herald*, December, 1871,) recommends urethral injections, as:

532. ℞. Zinci acetatis, gr. iv.
Aquæ, f.℥iv. M.
For one injection. Use twice daily.

When there is unusual irritability of the parts, mild alkaline diuretics and injections of acetate of lead or tannic acid are called for. For nocturnal emissions, belladonna is most useful.

MR. G. G. GASCOYNE, OF LONDON.

This writer (*British Medical Journal*, 1872,) speaks unfavorably of strychnia, belladonna, cantharides and phosphorus. For the local irritability which leads to emissions he has most frequently succeeded with:

533. ℞. Pulveris camphoræ, ℈ ij.
Pulveris opii, gr. x–xx.
Pulveris aloës socotrinæ, ℈ j–ij. M.
For twenty pills. One or two to be taken at bedtime.

He highly commends ergot, given in the fluid extract, combined with dilute sulphuric acid. Tincture of matico he has also found of good service.

PROF. D. HAYES AGNEW, OF PHILADELPHIA.

This teacher considers cantharides not advisable in spermatorrhœa with debilitated powers. He "knows no better treatment than phosphorus and strychnia:"

534. ℞. Strychniæ sulphatis, gr. ij.
Phosphorii, gr. j. M.
To make fifty pill. One three times a days.

The diet should be nutritious but not rich, the suppers light, the bladder kept well emptied, and the rectum free from irritation.

DR. GUIPON, OF PARIS.

535. ℞. Lupulinæ,
Camphoræ pulveris, āā gr. ix.
Extracti belladonnæ, gr. iss. M.
Divide into ten pills. From two to five a day, in spermatorrhœa. Cold lotions to the perinæum, hydropathy, tonic and reconstituent diet.

PROF. NIEMEYER, OF TÜBINGEN.

536. ℞. Liquoris barii chloridi, gtt. v–x.
This amount three times a day, after eating.

The *terra ponderosa* recommended by this author may be given in the officinal form, as above. So far as we have known it used in this country, it has not merited his encomiums.

DR. GEORGE H. SWAYZE, OF PHILADELPHIA.

This author (*Medical and Surgical Reporter*, July, 1875,) considers the best treatment to be urethral injections of a solution of sulphate of zinc, gr. j–iv to water f.℥j, using the weaker when the sensitiveness of the urethra is acute; and internally, ammonio-ferricalum, *ferri et ammonii sulphas*, with fluid extract of ergot, especially when there is relaxation of the parts, with excessive secretion and loss of semen.

PROF. ZEISSL, OF GERMANY.

537. ℞. Acidi phosphorici diluti, gtt. xxj.
Quiniæ sulphatis, ʒj.
Pulv. camphoræ, gr. v.
Extracti cascarillæ, q. s. M.
Make twenty pills. One or two of these two or three times daily.

538. ℞. Extracti quassiæ, gr. ij.
Ferri sulphatis, gr. j.
Pulv. cinnamomi, gr. ½. M.
For one pill. Two thrice daily in atonic spermatorrhœa.

DR. WILLIAM B. COSTELLO, OF SCOTLAND.

When persons are harassed and wasted by constantly recurring seminal losses, the use of the following prescription is not unfrequently attended by the best effects. The emissions cease, the appetite returns, and the general health is restored:

539. ℞. Pulveris lupulinæ, ℥ ss.
Make six powders. Take two daily; when finished, increase the above to ℥ v, and continue thus augmenting the quantity by ℥ j every three days, until ℥ j is reached.

DR. ULTZMANN, OF VIENNA.

In treating spermatorrhœa, this writer (*Wiener Medicinische Presse*, 1876,) insists upon the gravity of the disease, and the necessity for active treatment. The most efficacious measure is *catheterism;* but one must use a large catheter, of metal, and it must be inserted every day and allowed to remain in for twenty or thirty minutes, and this treatment must not be interrupted for six or eight weeks.

Next to this in efficacy is local cauterization. Dr. U. does not use the pure nitrate, but cocoa butter containing one-twentieth part of nitrate of silver, six grains of which mixture he introduces by means of Dittel's positor. When the parts are too irritable for this, he employs:

540. ℞. Morphiæ muriat., gr. iss.
Acidi tannici, gr. vij.
Butyri cocoæ, gr. xxx. M.
Divide into six parts.

For internal treatment, he has found nothing better than full doses of ergot.

Believing that catheterism is much aided by *cold*, Dr. WINTERNITZ has invented a sound with a double canula, but without a fenestra, through which a stream of cold water can be directed.

Dr. BLISS, of Boston, uses steel bougies, which he previously immerses in cold water. (*New York Medical Journal*, VII., 146.)

In any case, the bougie or catheter should be of *large* calibre, so as to exert effective pressure on the vessels surrounding the prostatic urethra.

RÉSUMÉ OF REMEDIES.

Amonii Bromidum is an effective sedative of the genital nerves. ʒss–ʒj may be given at night.

Atropia. Gr. $\frac{1}{100}$ daily, at night, has proved of signal benefit in spermatorrhœa from relaxation and dilatation of the ejaculatory ducts.

Barii Chloridum is recommended by Professor NIEMEYER. (F. 536.)

Camphora is an ancient and renowned anaphrodisiac, (*Camphora per nares, castrat odore mares.*) Full doses, gr. xx, diminish the venereal appetite and the vigor of the erections. Hence it is valuable in nocturnal seminal losses and excessive venereal sensibility. The following combination is valuable:

541. ℞. Ergotinæ ℈ ij.
Camphoræ, ʒj. M.
Make thirty pills. Three or four a day, or two at bed-time.

Monobromated camphor is a useful form of the drug in this affection; dose, gr. ij–x.

Capsicum has valuable applications in this disease. The tincture may be administered.

Carbonicum Acidum may be employed as directed by Dr. MALLEZ. (Page 387.)

Conium is occasionally of service. (F. 527.)

Dulcamara. The bitter-sweet is said to possess decided sedative properties on the venereal sense. Dr. GEORGE B. WOOD states he has seen it administered with good effect in cases of mania with marked erotic excitement. It has also been employed with asserted advantage in spermatorrhœa, having a controlling influence on the secretions. The usual officinal doses are those recommended.

Ergota is a valuable adjuvant to other remedies. (F. 529.)

Ferrum is constantly employed. BARTHOLOW prefers the *arseniate* (F. 529); BLACK the tincture of the chloride (F. 531); SWAYZE the ammonio-sulphate (p. 391); ZEISSL the sulphate (F. 538.) Probably there is no great difference which is chosen.

Gallicum Acidum. A tablespoonful of the saturated solution, thrice daily, has been recommended.

Gelsemium is said by Dr. EDWARD R. MAYER (*Hints on Specific Medication*) to be extremely useful in irritation of the bladder and posterior portion of the urethra. One dose at night will check nocturnal emissions, and is a certain preventive of chordee. Other writers corroborate its value in this disease.

Humulus. A favorite prescription in the New York hospitals is:

542. ℞. Tinct. humuli, f. ʒ vj.
Tinct. camphoræ, f. ʒ iv.
Tinct. opii, ℥ ij.
Syrup. tolutani, ad ʒ iv. M.
Teaspoonful in water at night.

Lupulina is employed by Drs. GUIPON and COSTELLO. (F. 539.)

Phosphorus is relied upon by Professor AGNEW, especially as combined with cantharides. (F. 534.)

Potassii Bromidum is an invaluable sedative. (F. 517.)

Strychnia is much used to give tone to the nervous system. (F. 534.)

Tannicum Acidum is employed locally. (F. 521.)

Veratrum Viride is a potent agent for controlling the priapism associated with some cases of spermatorrhœa.

Zincum. The acetate and sulphate are employed for injections. Dr. J. WARING CURRAN says the *oxide* is a drug of the greatest efficacy in seminal emissions. He combines it with camphor and conium.

VARICOCELE.

The numerous operations suggested for the radical cure of varicocele indicate that there is none wholly satisfactory to surgeons; and the occasional deaths from pyæmia recommend the employment, in preference, of some less dangerous means of cure. The most promising of these is by *compression*. In the majority of cases this is preferable to any more violent means of treatment, and in a large proportion favorable results may be expected. The pendent parts are to be supported, while moderate compression is made immediately over the external abdominal ring. To make the pressure an ordinary hernia truss may be used, with a perinæal band to keep it perfectly in position. The aim is to make such an amount of pressure as will moderately compress the veins at this point, and maintain it night and day, the truss only being removed for purposes of cleanliness.

Owing, however, to the annoyance of the truss, and the objection to allowing the blood to continue its vertical direction, the following plan of suspension, suggested by Mr. MORGAN, professor of surgical anatomy in the University of Dublin, has many advantages: The testis is enclosed in the "suspender," which consists of a piece of web about three and a half inches wide at one end, four and a half inches long, four inches wide at the other, and cut gradually tapering to the narrow end. A piece of thick lead wire is stitched in the rim of the smaller end, and the sides are furnished with neat hooks, a lace, and a good tongue of chamois leather, two tapes being sewn along the entire length of the web, which are afterwards attached to the suspending

belt. The application is easily made by the patient in the morning before rising, and when the parts are relaxed, laying the affected organ, while in the dependent position, in the "suspender," and lacing up the hooks with a moderate degree of tightness, then raising it up and attaching the tapes to the suspending belt previous to rising from bed.

The size of the "suspender" must, of course, vary more or less, but the measurements named will suit an ordinary case; the lead wire encircling the lower end gives a foundation to the general means of support, and keeps the testis within the suspending bag; the patient can mould it more or less to his convenience. Of course, as in every appliance of the kind, a certain amount of discretion must be used as to wearing the suspender; for the first few days it should not be kept on constantly; the parts should be sponged night and morning with cold water or a cold lotion, used so as to fortify the skin, as any chafing must be avoided. In all cases the suspender is best omitted at night.

Dr. EDWARD R. MAYER states that he has obtained the most satisfactory results in cases of varicocele, by applying lotions of tincture of *hamamelis virginica*, diluted with water.

XIII. LESIONS OF THE ORGANS OF SPECIAL SENSE.

THE NOSE.—*General Therapeutics of Nasal Diseases—Epistaxis—Nasal Duct, Obstruction of—Ozæna—Rhinitis.*

THE EYE.—*Amaurosis—Blepharitis—Conjunctival Diseases—(Ophthalmia)—Corneal Diseases (Ulcers, Opacity)—Iritis—Keratitis—Styes (Hordeolum)—Wounds and Injuries of the Eye.*

THE EAR.—*Eczema of the Auricle—Otitis—Otorrhœa—Tinnitus Aurium.*

GENERAL THERAPEUTICS OF NASAL DISEASES.

THE USE OF THE NASAL DOUCHE.

The use of the nasal douche has met with severe condemnation from Dr. D. B. ST. JOHN ROOSA, of New York, and he has detailed a number of cases in which its employment has entailed unfortunate results, even in skillful hands. Nevertheless, other specialists have by no means consented to banish it from practice.

DR. JAMES PATTERSON CASSELLS, M. R. C. S.,

Has, since ROOSA's paper, defined more clearly the proper mode of using it. (*Dublin Journal of Medical Science*, 1877.) He says:

"I never use it except in appropriate cases; never trust the use of the syphon douche to the patient, but in every case do the operation upon the individual myself; self-use in this, as in many similar circumstances, mostly means self-abuse. After deciding that the case is one in which the douche is admissible, I observe the following precautions, which, I may add, are applicable to the various modifications of the process. To have the fluid to be used non-irritating—of a density greater than the serum of the blood—about 90° Fah. in temperature, and *never to use pure water alone.* To give the column of fluid a fall

from a point about one foot above the level of the patient's nose, patient meanwhile leaning forward and breathing short, rapid breaths, about forty per minute, interrupting the flow of the fluid every few seconds to allow of the patient resting, and to permit of the nostrils being sniffed out from behind by a succession of violent expirations through the nostrils, *the mouth being closed*, stopping the fluid from passing into the nostrils the instant that the patient ceases to breathe as I have directed, or on any involuntary act of swallowing taking place on the part of the patient; finally, in all cases, never to allow the patient to blow the nose after using the douche, till all the residual fluid has been expelled from the nasal passages by oft-repeated and strong expirations through them with the mouth closed. Lastly, never to begin the douche till the patient thoroughly comprehends the part that he or she is expected to perform in the course of the proceeding."

DR. CONSTANTINE PAUL, OF PARIS.

It is recommended by this writer (*Bulletin General de Therapeutique*, April, 1876,) that nasal irritation should be practiced with the patient in the upright position, and the head bent forward, the nostrils occupying the lowest portion of the nasal form. The best apparatus is the original one of H. WEBER. It consists of a caoutchouc tube, a yard and a half in length, the nasal extremity having an "ampulla" of horn or glass, which fits into the nostril; at the other end is a U-shaped tube of some solid material for convenience of insertion into the solution. A special apparatus is not, however, necessary, as an ordinary bone enema pipe around which linen may be wrapped to give it sufficient volume, so as to fill up the nostril, can be easily adapted to the tube of an irrigator. In such case, M. PAUL advises that the tap of the irrigator should be at "half cock." The affections in which he has especially employed these irrigators are ozæna, lupus of the nose, chronic rhinitis, nasal eczema and acute coryza. He has successfully used the following:

543. ℞. Sodii hyposulphitis, gr. xxv.
Aquæ, f.℥j. M.

And,

544. ℞. Chloral hydratis, gr. xv.
Aquæ, f.℥j. M.

ON NASAL BOUGIES.

Hitherto the treatment of nasal disease has been confined to injections of tepid water and solutions of different drugs, and applications of caustic to the nasal mucous membrane by means of *port-caustique*, the latter of which methods causes intense pain when the mucous membrane is swollen and the meatus is narrow. Moreover, cauterizations cannot be employed sufficiently often.

For these reasons *nasal bougies* have been recently introduced. They are made of *gelatine* and medicated commonly with alum, sulphate of copper, rhatany, carbolic acid, etc. Their use has been attended with great success. They are a little over three inches in length, and from one-eighth to one-quarter of inch in diameter, pointed at one end so as to be more easily introduced. Their introduction is not at all painful; the elastic body adapts itself to every irregularity in the nasal cavity, passes very easily through the narrowest parts of the meatus, and dilates them by gentle pressure. These bougies have been used in cases of *coryza* and *ozæna*, and with great success in cases of extensive swelling of the nasal mucous membrane and of the turbinated bones. If there is total obstruction of the meatus, and air cannot be drawn through the nostril, the introduction of the first bougie often effects great improvement. In cases of ozæna, sulphate of copper and carbolic acid are the most useful agents; but where there are extensive swelling and relaxation of the mucous membrane, the tincture of rhatany is to be recommended. Sulphate of zinc is not much used, for, according to Störk's experiments, solutions of this drug, when they are only injected into the nose, destroy the power of smell. There is no difficulty in introducing the bougie; it is advisable to give it a rotatory as well as an onward motion during introduction. Even in the most obstructed meatus, it is possible to introduce the bougie completely and in any direction; afterward the nostril is plugged with lint to prevent the liquefied gelatine escaping by any other orifice than the posterior nares. When there is much secretion present, the gelatine may liquefy in three-quarters of an hour, but it usually takes three hours. It causes no unpleasant sensation while in the nose, and it is useful, not only in applying medicaments to the mucous membrane but in keeping the meatus dilated.

EPISTAXIS.

545. ℞. Ergotæ extracti fluidi, q. s.
Twenty drops three times a day, in obstinate, recurrent epistaxis.

546. ℞. Olei terebinthinæ, gtt. xx–xxx.
To be given *pro re nata*, in capsule, milk or emulsion.

This very valuable remedy for persistent or recurrent epistaxis rarely fails to cure the most obstinate cases.

547. ℞. Infusi digitalis, f.℥ ij.
Tincturæ krameriæ,
Extracti fluidi ergotæ, āā f.℥ j. M.
A tablespoonful as required. Given twice a day, it will maintain a constant physiological effect. Recommended by Dr. BARTHOLOW.

Dr. BEVERLY ROBINSON (*Medical Record*, New York, March, 1876,) mentions a case where compression of the facial arteries proved successful in arresting epistaxis when styptics had proved ineffectual. These arteries were compressed upon the superior maxillary bones, just before they reach the alæ of the nose, by means of two small pads of lint.

A writer in the *British Medical Journal*, 1876, directs attention to the claims of *warm water*, applied externally to the face and nose in the treatment of that disease. It is not, perhaps, adapted for those severe cases where plugging the posterior nares is evidently and at first sight the only thing to be done; but it is, according to his experience (confirmed by that of his friends) the best remedy that can be applied for ordinary light cases.

548. ℞. Tincturæ ferri chloridi, f.℥ j.
Aquæ, f.℥ iij. M.
For injecting into the nostrils with a syringe. Or a plug of lint soaked in it may be pushed up. Any of the other styptics, alum, persulphate of iron, etc., may be used in like manner.

RÉSUMÉ OF REMEDIES.

Aconitum. Small and frequent doses often check epistaxis in children and plethoric people.

Alumen may be injected in solution, or the dry powder may be snuffed up.

Digitalis will often control epistaxis promptly. The infusion is said to be the best form in which to administer it.

Ergota is of very positive value. If the case is urgent it may be given hypodermically, gr. ij–v. Otherwise the fluid extract by the mouth is sufficient. (F. 545.)

Ferrum. Various preparations of iron are useful. *Iron spray*, of a weak solution of the *liquor ferri subsulphatis*, f. ʒj to aquæ f. ℥ viij, is a very serviceable astringent in obstinate cases. The nozzle of the tube should be inserted just within the nares, and the spray be driven with considerable force. Or it may be introduced on a feather. The *tannate of iron* may be given internally; and to correct the condition of anæmia which follows nothing is better than the tincture of the chloride with quinine.

Galla. Powdered galls taken freely, gr. x–xx, is an excellent astringent in cachectic subjects.

Hamamelis has been found very serviceable in epistaxis (♏ j–ij of the tincture every half hour.)

Opium. Professor GROSS recommends that Dover's powder in large doses should be prescribed when there is dryness of the skin.

Quinine. A writer in the London *Lancet*, 1878, says quinine is *the* remedy in epistaxis. He says that he has tried it more than twenty times, often in aged people, and has never found it to fail.

Sodii Sulphas. A teaspoonful of Glauber salts every half hour is recommended by German writers.

Tannicum Acidum. A solution of tannic acid ʒj, aquæ f. ℥ vj, makes a good astringent injection or spray.

Terebinthinæ Oleum. A valuable remedy, not so well known as it should be. (See above.)

EXTERNAL MEASURES.

Blisters. In obstinate cases blisters applied to the nape of the neck are serviceable.

Cold. Pounded ice to the nape of the neck, or pieces of ice inserted into the nostrils or held against the roof of the mouth, often produce a happy effect. FERNEL recommends ice to the testicles or mammæ.

Cupping. Dry-cupping between the shoulders is useful in plethoric young people.

Heat. The spinal hot-water bag, applied to the cervical and upper dorsal vertebræ, is an excellent means. When the extremities are cold, hot mustard foot-baths should be resorted to.

Insufflation of astringent powders (alum, matico, tannin, etc.,) is frequently useful.

Plugging, A piece of dry cotton may be introduced and left in the bleeding nostril; or the cotton may be wet in an astringent solution previous to introduction. For plugging the posterior nares, the directions in surgical treatises should be consulted.

Position. In all cases the head and shoulders should be elevated. Raising the arms high above the head is a popular mode to stop nose-bleed.

Pressure on the facial artery, where it passes over the lower jaw, will often have the desired effect. For Dr. ROBINSON's plan, see above. Compression of the nostrils, with the patient's head bent forward, continued some time, will oc-

casionally succeed. On a similar principle, a firm ligature around one or both thighs or arms will sometimes check the flow.

Transfusion. As a last resort, when deathly exhaustion is imminent, transfusion of blood is not only proper, but demanded.

Venesection, once often practiced in this complaint for its derivative effect, is rarely proper.

NASAL DUCT, OBSTRUCTION OF.

Obstruction and inflammation of the nasal duct, or dakryocystitis, is often due to temporary causes, mere congestion or œdema of the mucous lining being the most common, but plugging with inspissated mucus being also an occasional cause of the obstruction. Such cases may often be relieved by the simplest possible treatment, or get well spontaneously; but if they have remained unrelieved or neglected, they may pass into the condition of permanent obstructions, and these will almost always require treatment by the use of instruments.

In less obstinate cases, much may be done by washing out the lachrymal sac and the duct with stimulating injections, painting the exterior with tincture of iodine to prevent abscess, and the employment by the nostrils of stimulant powders, such as scented snuffs. The obstructions not unfrequently arise from catarrhal, strumous or syphilitic affections of the Schneiderian membrane, to which conditions it is necessary to direct the general treatment.

Of injections, one may use:

549. ℞. Cupri sulphatis, gr. ij.
Aquæ, f.℥j. M.

Or:

550. ℞. Zinci sulphatis, gr. j–iij.
Aquæ, f.℥j. M.

When the Schneiderian membrane is thickened and inflamed, Mr. W. SPENCER WATSON uses a mixture like the following, with an atomizer:

551. ℞. Acidi carbolici, gtt. v.
Aquæ ammoniæ, gtt. x
Alcoholis, f.℥j. M.
For atomization.

A carbolic acid solution of varying strength has been used by other surgeons, for injecting the duct by means of an Anel's eye syringe. In a late article, Dr. G. STAMPINATI (*Mov. Med. Chir.*, March, 1876,) refers to a number of cases where treatment had been unsuccessful, but which were rapidly cured by the following method: A thirty per cent. solution of *persulphate of iron* was diluted with two parts of water, and this fluid injected by means of an Anel's syringe, into the sac. After remaining a few minutes, the fluid was aspirated with the same syringe. The injection may be made every day; and after repeating it about twenty times, a permanent cure is obtained.

OZÆNA.

JAMES E. GARRETSON, M. D., D. D. S.

Ozæna arises from various conditions, the nature of which must direct our treatment. The principal of these are as follows:

1. *Accumulation and Degeneration of the Common Antral Secretion.*—This is most frequently observed in the course of an ordinary coryza. It requires little treatment. The patient may be directed to sniff up the nostril of the affected side, some such combination as the following:

552. ℞. Ætheris sulphurici f.℥j.
Tincturæ iodinii, f.℥ij.
Olei juniperi, f.℥j. M.
For insufflation.

If this fails to check the discharge, then constitutional treatment, such as is called for, is indicated. A plethoric patient should have a dose or two of sulphate of magnesia, and a restricted diet; an anæmic patient should have a tonic regimen, with some iron and quinine internally.

2. *Fetid Discharges from Tooth Abscesses Opening into the Antrum.*—This form of ozæna is cured, as a rule, by extracting the decayed tooth. If this does not succeed, injections are to be made through the tooth alveolus. A good one to commence for a day or two with, is a solution of permanganate of potash, ℥ss–j to aquæ, f.℥viij, to control the fetor; this can be employed three times a day, after which one of the following can be employed:

553. ℞. Tincturæ iodinii,
Glycerinæ ää f.℥j.
Acidi tannici, ℥ss.
Aquæ coloni, f.℥j.
Aquæ destillatæ, f.℥iij. M.

Or,

554. ℞. Tincturæ capsici compositæ, f.℥ss.
Aquæ rosæ, f.℥viij. M.

Or,

555. ℞. Argenti nitratis, gr. xxx.
Aquæ, f.℥vj. M.

Or,

556. ℞. Vini opii, f.℥j.
Vini aromatici, f.℥j.
Aquæ, f.℥vj. M.

Of these the iodine generally acts most satisfactorily.

3. *Ulceration of the Mucous Membrane of the Antrum.*—This is quite rare unless some constitutional dyscrasia is present. This, of course, requires appropriate general treatment. The best local treatment is to extract a tooth, and make an entrance into the antrum through its alveolus with any pointed instrument—a simple and easy operation. This done, the opening is to be kept patulous by introducing a tent of cotton or sponge. As an injection to be thrown through the opening, the following may be employed:

557. ℞. Acidi carbolici, gtt. xx.
Acidi tannici, gr. v.
Glycerinæ, f.℥ss.
Aquæ, f.℥vj. M.
For an injection.

Or the following:

558. ℞. Alcoholis, f.℥j.
Creosoti, gtt. x
Aquæ, f.℥vj. M.

Or the permanganate of potash, as suggested above. *Phenate of soda* is also one of the very best injections in these cases.

When the constitutional taint is syphilitic the patient must be placed upon anti-syphilitic remedies. Mercurial ulcers of the antrum are much more common than syphilitic ones. They demand *chlorate*

of potash internally, gr. x four or five times a day. Scrofulous ulcers are also frequent.

These ulcers are also often located in the nares, especially syphilitic ones. They are often accompanied by nasal osteitis, frequently ending in necrosis, especially of the vomer.

When the nasal bones are thus affected, the overlying skin is congested; pressure on the bridge produces much pain, and lachrymal secretions often run over the cheek.

The treatment required is to limit and circumscribe the local inflammation as much as possible by the usual means, and to build up the system. An excellent application is the following:

559.	℞.	Tincturæ ferri chloridi,	f.℥j.	
		Quiniæ sulphatis,	gr. xxv.	
		Tincturæ iodinii,		
		Glycerinæ,	āā f.℥j.	
		Aquæ,	f.℥iv.	M.

Inject, or brush over and about the parts three times a day.

Iron or quinine will be needed internally. Iodide of potassium must be freely given. But a good diet, moderate exercise, judicious amounts of malt liquor, and systematic bathing are the reliable means to enable the system to throw off the disease.

When the bone is necrosed, no attempts should be made to remove the sequestrum until the probe reveals it to be quite loose, when it may be lifted out.

4. *Foreign Bodies.*—Some of the most offensive and obstinate cases of ozæna arise from the lodgment and retention of foreign bodies. Pieces of sponge or cotton left behind in swabbing the nares, rhinolites in the canals, peas, rags, buttons, etc., become sources of offence, resisting all medication and foiling the best attempts at cure until they are removed.

The patient should be placed in a strong light, and the parts searched with a delicate forceps; or he should be given a pinch of snuff, while his unobstructed nostril is compressed, so that the effort of sneezing may eject the obstruction. The employment of the rhinoscope is to be highly commended.

The rubber-bulb atomizer is an instrument of great service, which can be used by the patient without danger or trouble of any kind, and carries the spray to every part of the nostril. It may be charged with a solution of permanganate of potash or chlorine water, and kept

about the person ready for use at any time. In cases which emit much fetor, its employment will avoid many moments of mortification.

PROF. S. D. GROSS, M. D.

560. ℞. Cupri sulphatis, gr. ½.
Acidi tannici, gr. iij.
Aquæ, f.℥j. M.
Use for a douche.

Dr. GROSS has employed the above for many years with signal benefit. If the fetor is marked, liquor sodii chlorinatæ may be added. In old and obstinate cases, a rapid cure may sometimes be effected by washing out the nostrils freely, twice a day, with the following:

561. ℞. Zinci chloridi liquoris, gtt. x-xv.
Aquæ, f.℥viij. M.

It is a serious error in ozæna to use irritating lotions or unguents. The best plan is to begin with very weak applications, and increase their strength gradually. Whenever there is decided smarting and tension in the frontal sinus, the application is probably doing injury rather than benefit.

DR. EDWARD C. MANN, OF NEW YORK.

This physician commences by thoroughly cleansing the nasal cavities with the following:

562. ℞. Sodii chloridi, ℥j.
Aquæ, ℔j. M.
Use with the douche.

He then applies thoroughly to the entire surface of the nasal cavity, the following:

563. ℞. Argenti nitratis, ℥j.
Glycerinæ, f.℥j. M.

Next he propels vapor of iodine into the nares for a quarter of an hour by means of a bulb and nasal tube. This is to be repeated daily. Meanwhile he prescribes the following snuff, to be used *ad libitum:*

564. ℞. Pulv. camphoræ,
Sacchari albi, partes equales.

When there is ulceration of the mucous membrane and caries of the bones of the nose, the following solution, applied over the affected part, is of great service:

565. ℞. Iodinii, gr. ij.
Potassii iodidi, gr. xij.
Glycerinæ, f. ℥ ij. M.
For local application. (*New York Medical Journal*, Oct., 1874.)

DR. DUBOIS, OF NEW YORK.

This writer states that ulcerations at the septum of the nose are frequently the cause of a persistent, fetid discharge from the nostrils. (*New York Medical Record*, April 21st, 1877.) Many of them can be, without difficulty, brought to a condition of partial cure; that is, to where they can control the discharge from the nostrils to such an extent as not to be seriously inconvenienced thereby. It is a question in some of these cases, as to the advisability of stopping suddenly a long-continued discharge. The treatment that he has found most convenient for the patient, and at the same time very effective locally, has been the use, night and morning, of the following:

566. ℞. Vaselinæ, ℥ j.
Acidi salicylici, gr. v. M.

This is introduced into the affected nostril by a camel's-hair pencil; or, better still, by a little cotton wool wound around the end of a stick. At the same time he gives $\frac{1}{100}$—$\frac{1}{50}$ grain of corrosive sublimate with some preparation of iron, twice daily. He frequently finds that, after this treatment has been continued for one or two months, a complete cure is effected; while in other cases the discharge has so far ceased after a few weeks, that the patient being satisfied, leaves off the treatment.

For medicated douches:

567. ℞. Sodii phosphatis, ℥ ss.
Aquæ destillatæ, f. ℥ viij. M.
Used to loosen the crusts and viscid secretion.

568. ℞. Potassii permanganatis. ℥ j.
Aquæ destillatæ, ℥ j. M.
To correct the fetor.

Dr. WETZLER advises creosote, ℥ j to cerate ℥ j, applied to the inner membrane daily, with a camel's-hair brush.

DR. SOBRIER, OF FRANCE.

569. ℞. Bismuthi subnitratis, ʒ ss.
Sulphuris iodidi, ʒ vij.
Pulveris glycyrrhizæ. ʒ j. M.
For a snuff in ozæna and chronic nasal catarrh. From ten to fifteen pinches a day should be used.

DR. BERNARD FRANKEL, OF BERLIN.

The *local* treatment of ozæna must be directed to the removal of the secretions, to the restoration of the membrane, and to the deodorization of the discharge. For the first we may use, either in the form of douche, injection or spray, such solutions as:

570. ℞. Sodii chloridi, ʒ j.
Aquæ, Oj. M.

571. ℞. Ammonii chloridi, gr. ij–x.
Aquæ, f.ʒ j. M.

572. ℞. Sodii bicarbonatis, ℈ ij–iij.
Aquæ, Oj. M.

To restore the membrane to its normal condition, we must be governed by the etiological factor of the disease. In syphilitic rhinitis the following are useful applications:

573. ℞. Hydrargyri chloridi corrosivi, gr. ¼–½.
Aquæ, f.ʒ j. M.
To use as a douche.

574. ℞. Hydrargyri chloridi corrosivi, gr. v–x.
Aquæ, f.ʒ j. M.
To be cautiously applied with a brush.

Dilute tincture of iodine and Lugol's solution are also applicable in some instances. TROUSSEAU recommended:

575. ℞. Hydrarg. chloridi mitis, ℈ ij.
Hydrarg. oxidi rubri, gr. xv.
Sacchari albi, ʒ ss. M.
A pinch to be snuffed up five or six times a day.

In many cases no constitutional cause is discoverable. CAZENAVE has called attention to the value of *nitrate of silver*.

576. ℞. Argenti nitras, gr. x–xxx.
Aquæ, ʒ j. M.
Apply with a brush.

577. ℞. Argenti nitratis, gr. xxv.
Adipis, ʒj. M.
Use as an ointment to the nasal membrane.

As a snuff, some astringent, as tannin or alum, is commonly used, combined with powdered white sugar or magnesia, one part of the astringent to ten or fifteen of the vehicle. When there is hyperplasia of the membrane and stenosis of the nasal canal, caustic applications are indicated, as nitrate of silver in substance, tincture of iodine or the galvano-cautery.

As deodorants, the usual disinfectants may be used, or the creosote ointment recommended by Dr. WETZLER:

578. ℞. Creosoti, ♏ xx–l.
Cerati simplicis, ʒj. M.
For an ointment.

Or one of the following snuffs, recommended by Dr. HEDENUS:

579. ℞. Carbonis animalis, ʒj.
Pulv. cinchonæ,
Pulv. myrrhæ, āā ℈j.
Pulv. caryophylli, gr. x. M.

580. ℞. Carbonis ligni,
Pulv. myrrhæ, āā ʒss. M.
A pinch of either of the above to be taken every hour.

Astringents in this disease should be exhibited only when there is increased secretion and swelling; in the dry and atrophic forms they are contra-indicated.

DR. BERNARD KAUS, OF VIENNA.

The use of the solid stick of *nitrate of silver* is especially called for where ulcerations are present. It is best applied with the aid of the laryngoscopic mirror, the nitrate being fused on the end of a metal sound. A cardinal remedy is the *corrosive chloride of mercury*, although it has recently fallen into neglect; it may be used in a snuff with white sugar.

581. ℞. Bismuthi subnitratis, ʒj.
Potassii sulphureti, gr. v.
Pulv. glycyrrhizæ, ʒiss. M
For a snuff. Useful as a disinfectant.

DR. PROSSER JAMES, OF LONDON.

Of substances useful to wash out the nasal passages, the author had used, with fair results, *chloride of aluminum;* but, on the whole, preferred the *permanganates.* These promptly remove the fetor, which is the great distress of the patient. A weak solution should be freely employed at first, gradually increasing until there is a little smarting. Ulcerations and erosions should be touched with a strong solution or with a paste. Inhalation of *iodine* vapor is often of great value. When syphilis is believed to be the cause, *iodide of sodium,* in large doses, is called for. This contains more iodine than the potassic salt, and is not so apt to disturb the stomach. The *iodide of calcium* is also an excellent preparation.

RÉSUMÉ OF REMEDIES.

Alumen. The nostrils may be well irrigated with a solution of ʒj to aquæ Oj.

Aluminum. The acetate of alumina is more efficient in correcting fetor than simple alum. Dr. PROSSER JAMES prefers *chloralum,* the chloride of aluminum.

Ammonii Chloridi is used as a wash by Dr. FRANKEL. (F. 571.)

Aqua Picis. The following is an injection extolled by M. DELIOUX DE SAVIGNAC:

582. ℞. Aquæ picis, f.ʒ ij.
Acidi carbolici crystal., gr. j. M.
For a lotion.

Argenti Nitras. When ozæna depends upon ulcers in the posterior nares, these should be touched with nitrate of silver, or with a solution of the strength of a fifth or a tenth; or, the following ointment (Dr. MAURIAC, Paris):

583. ℞. Argenti nitratis, gr. x–xx.
Aquæ destill., q. s. to dissolve.
Unguenti aquæ rosæ, ʒj. M.
For local use to ulcerations or fungosities.

Bismuth. TROUSSEAU employed equal parts of bismuth and powdered talc in chronic non-syphilitic ozæna, ordering the patient to clear well the nasal passages by blowing the nose, and then to snuff up some of the powder. It is advantageously combined with astringents, as:

584. ℞. Pulv. aluminis,
Acidi tannici, āā ʒj.
Bismuthi subnitratis, ʒv.
Pulv. talc, ʒx. M.
To be sniffed up several times a day. (Dr. MAURIAC.)

Bromidii. The offensiveness of ozæna may be removed by inhaling through the nostrils a few drops of the following:

585. ℞. Brominii, ℥ss.
Alcoholis, f.℥ iv. M.

For inhalation. A small quantity to be placed in a wide-mouthed vial, and vaporized by the warmth of the hand. (Bartholow.)

Camphora is used as an adjuvant to snuffs.

Carbolicum Acidum. A weak solution makes an excellent disinfectant injection. Dr. Samuel R. Percy, of New York, recommends for injections for the nose:

586. ℞. Tinct. iodinii, ♏ xlv.
Acid. carbolic., ♏ vj.
Glycerinæ, f.℥ j.
Aquæ destillat., f.℥ v. M.

The proportion of carbolic acid may be increased.

Chloral. Injections of chloral, gr. v-xxx to aquæ f.℥ j, have been successfully employed.

Cupri Sulphas is employed by Prof. Gross. (F. 560.)

Hydrargyrum. White or red precipitate, gr. j to white sugar ℥ j, was used frequently in non-syphilitic ozæna with success, as a snuff, by Trousseau. Weak solutions of the corrosive chloride are valuable in obstinate cases (see above), but must be used with great caution, as the Schneiderian membrane is very sensitive to this salt. Ointment of the nitrate has been well spoken of in the syphilitic form.

Hydrastis. It is said that five to ten drops of the fluid extract of hydrastis, taken internally, and the local application of a dilute solution of the same, have acted very favorably on the diseased membrane.

Iodine, in solution, is frequently used for inhalation.

Iodoform, either in powder or ointment, has been applied with advantage to the diseased surface.

Pix Liquida. This formula containing pix may be employed:

587. ℞. Sodii carb. cryst. pulv., gr. xvj.
Picis liq., gtt. xvj.
Aquæ, f.℥ iij. M.

For an injection into the nares.

Potassii Permanganas. A solution of this, gr. j-℈ j to aquæ f.℥ j, makes a very useful wash.

Salicylicum Acidum. The plugging of the nasal cavity with *salicylated cotton* is adopted by Dr. Gastein, of Breslau. (*Allg. Med. Cent. Zeit.*, October, 1879.) The cotton is soaked in a solution of alcohol, glycerine and salicylic acid, and dried. The plugs are left in twenty-four hours.

Sodii Chloridum. In ordinary cases of non-syphilitic ozæna, hardly any substance renders better service than *common salt*, dissolved in water, or, what is better, *milk*, and employed in large quantities, one or several gallons at a time. The strength is about ℥ j to O j. It should be allowed to run freely through the nostrils by means of the douche.

Sodii Hypochloritum. The repulsive odor of ozæna is happily neutralized by dilute solutions of hypochlorite of sodium.

Tannicum Acidum. In ozæna, both of syphilitic and non-syphilitic character, especially in children, tannin is of great service. The best preparation is the glycerite of tannin, with which the inside of the nose should be well brushed out, after the scabs and incrustations have been removed. The discharge ceases after a single application. (RINGER.)

DAVY recommends the following astringent injection:

588. ℞. Tannin, gr. iss.
Glycerinæ, gtt. xxx.
Aq. destillat.,
Aq. rosæ, āā f.℥ ss. M.

Zinci Chloridum. In weak solution (gr. ij–vj to aquæ Oj,) this is a valuable wash in ozæna. Others use it much stronger, but a very weak solution used in large quantities (one to two gallons) is better.

RHINITIS.

DR. D. PORTER, OF ST. LOUIS.

In the early stages of rhinitis, this writer (*St. Louis Medical and Surgical Journal*, November, 1875,) recommends mustard foot-baths and stimulating diaphoretics locally; the inhalation of a little chloroform when pain and irritation are prominent symptoms; resolvents and astringents when there is a sense of oppression and fullness, as the following:

589. ℞. Iodinii, gr. v.
Extracti conii, gr. x.
Chloroformi, f.℥j. M.
To be used as an inhalant.

In the chronic form of rhinitis, four points are mainly to be considered. The first has reference to the predisposing cause, the constitutional fault, which must be rectified. In the strumous type, iodide of iron, or iodoform and iron with cod-liver oil, are generally indicated. The treatment of the syphilitic type is obvious. If there is ulceration, potass-iodide, with ammonia and some form of tonic, are called for; but if no ulcers exist the *bichloride of mercury*, in small doses, if persevered with, he thinks has no equal. These cases he regards as much more manageable than those of scrofulous origin. In

the forms dependent upon the catarrhal diathesis, phosphorus is indicated.

Secondly, the local cause of catarrh must be removed; polypi and glandular hypertrophies must receive appropriate treatment.

The third important item is to keep the part thoroughly cleansed, so as to remove all adherent mucus and incrustations. This he accomplishes by means of the nasal douche, under the immediate supervision of the physician, and with certain restrictions, viz., the solution used should never exceed a drachm of salt to the pint of water, nor the pressure that of a column of water of twelve inches, and, to reach the upper parts of the nasal cavity, he attaches to the douche a tube with an aperture upon its side, through which, after the tube has been introduced into the nostril, the stream is directed upward. The same effect is produced by attaching the tube to a nasal syringe, or the apparatus of RUMBOLD may be used. Potass. permang. or salicylic acid may be used in spray after the cleansing.

Fourth, local medication, which consists in touching ulcers with iodine in glycerine and water, with a little iodide of potassium, or with a weak solution of silver, the latter being recommended when there is thickening of the membrane. When the ulcerations are sluggish, he states that chloral hydrate (grs. v–xv–℥j) answers a good purpose; where the thickening is not marked, iodine vapor does well; and finally, in many cases, the frequent use of a snuff, composed of camphor, tannic and salicylic acid, is advantageous.

THE EYE.

AMAUROSIS.

In certain cases of failure of vision, apparently owing to defective action of the optic nerve, the injection of *strychnia* into the temple has resulted advantageously. The following rules in these cases are laid down by

PROF. FRANCIS L. PARKER, M. D.,

In the *Transactions* of the South Carolina Medical Society, 1875:

1. The local application of strychnia in amaurosis and amblyopic

affections is not applicable to cases arising from *existing or recent inflammation* of the optic nerve and retina; the ophthalmoscope is essential in determining the nature of the affection, whether arising from *functional* derangement or from a *mild* or *severe* form of organic disease.

2. In case of defective vision arising from *functional* derangement, sight is *generally promptly restored* by the local injection of strychnia; in the *milder forms* of organic disease, vision is generally promptly restored, or it may be simply benefited, but the result cannot be predicted by the ophthalmoscope: the treatment is entirely experimental. In the *advanced cases* of organic disease the remedy is useless.

3. If any practical benefit is to be derived from the local injection of strychnia *in functional or mild organic cases*, the injections, being given daily, it will be evinced between the *first and ninth injections*, most frequently between the *first and fourth*, or between the *second and ninth days*. If manifest improvement does not take place in this time, it is useless to continue the remedy.

4. The quantity of strychnia used in the successful cases varies from $^1/_{40}$ to $^1/_5$ of a grain. The injection should be continued daily so long as sight continues to improve. When the maximum of sight is attained (if only after several injections) it is unnecessary to continue the remedy.

5. The tonic influence of strychnia in the successful cases continues for many months; in numerous cases it has lasted for one and two years. It has been known to last five years, and by some observers the cures are regarded as permanent.

6. The cases which are practically benefited by this remedy are those in which ophthalmoscopic revelations are negative (the functional cases); those in which the ophthalmoscope reveals anæmia of the disc and retina, with a normal distribution of vessels; or those in which only commencing atrophy of the disc, with *limited disease of the retina*, or retina and choroid, are present.

In *advanced* cases, involving the disc, retina and retinal vessels, the injection of strychnia is practically useless.

BLEPHARITIS.

MR. ROBERT BRUNDELL CARTER, F. R. S., LONDON.

The treatment should be commenced by removing the crusts by a warm alkaline lotion (sodii bicarbonatis gr. v, aquæ f. ℥ j,) and then apply an astringent ointment, preferably that advised by Prof. PAGENSTECHER, of Wiesbaden, containing the yellow oxide of mercury:

PAGENSTECHER'S OINTMENT.

590. ℞. Hydrargyri oxidi flavi, gr. xxx.
Olei olivæ, f. ʒ j.
Adipis, ʒ j. M.

If the disease resists this, the parts may be touched with a stick containing one-fourth part of nitrate of silver or with liquor potassæ.

Not unfrequently this condition of the lids is associated with the scrofulous dyscrasia, and for its permanent cure demands constitutional treatment. (See Chapter XV.)

Besides Pagenstecher's ointment, the surgeon may use:

591. ℞. Zinci oxidi, ʒ ij.
Adipis purificati, ʒ vj. M.

Or,

592. ℞. Hydrargyri nitratis, ʒ ss.
Cerati simplicis, ʒ j. M.

Whatever application is used, the most important precept is to make it sufficiently weak, to apply it not oftener than once or twice in the twenty-four hours, and to bring it fairly in contact with every portion of the diseased surface.

CONJUNCTIVAL DISEASES (OPHTHALMIA.)

PROF. J. SOELBERG WELLS, M. D., LONDON.

Hyperæmia of the Conjunctiva. This author states that hyperæmia of the conjunctiva is often caused by close application of the eyes,

insufficient light, or from contact with atmospheric or mechanical irritants. The cause is first to be removed. In order to relieve the feeling of heaviness which oppresses the eyelids, employ one of the following

EVAPORATING LOTIONS.

593. ℞. Spiritûs ætheris nitrosi, f.℥j.
Acidi acetici aromatici, gtt. vj.
Aquæ destillatæ, f.℥ vj. M.

To be sponged over the closed eyelids and around the eyes three or four times daily, and allowed to evaporate.

594. ℞. Ætheris, f.℥ ij–iv.
Spiritûs rosmarinæ, f.℥ iv. M.

To be used in the same manner as F. 593, but in smaller quantity, especially if the skin be delicate and susceptible.

The best *astringent lotions* are the following:

595. ℞. Zinci sulphatis, gr. ij–iv.
Spiritûs rosmarinæ, f.℥ vj. M.

596. ℞. Plumbi acetatis, gr. ij–iv.
Aquæ destillatæ, f.℥ iv–vj. M.

The above are to be applied by saturating a piece of lint with the solution, and laying it over the eyelids for fifteen or twenty minutes several times a day, allowing a few drops to enter the eye.

In chronic cases of hyperæmia, these applications must give place to weak *collyria*, such as:

597. ℞. Cupri sulphatis, gr. j–ij.
Aquæ destillatæ, f.℥j. M.

598. ℞. Argenti nitratis, gr. j.–ij.
Aquæ destillatæ, f.℥j. M.

A drop or two of one of these collyria is to be applied to the conjunctiva.

DR. J. R. WOLFE, F. R. S. E., SURGEON TO THE GLASGOW OPHTHALMIC INSTITUTE.

This writer gives his treatment of granular conjunctivitis trachoma, or Egyptian ophthalmia. (*Medical Times and Gazette*, April, 1876.) He remarks that the vesicular or granular stage is the chronic indolent condition of the disease, the acute being the purulent stage. Between these conditions there is the sub-acute or mixed stage. This

form is highly contagious, and when it heals always leaves behind conjunctival cicatrices. The division of writers into *true* and *vesicular* granulations is unintelligible. Neither is there any reason for regarding the suppurating granulations as Egyptian ophthalmia, and the indolent form as mere granulations. It is the same disease in different degrees of activity. The indolent form may, at any time, rise to the suppuration stage, the same as the suppurative granulations may retrogress into the vesicular form. The disease is apt to involve not only the conjunctiva, but the tarsal cartilages, producing entropion, and by its friction upon the cornea gives rise to pannus, trachomatous degeneration, and rupture of the cornea.

With regard to the treatment, it is easily explainable why, in the first stage of the attack, warm poultices, as recommended by VON GRAEFE, are of great use, because they promote suppuration and the discharge of the foreign bodies or impurities which cause and propagate the disease. But when the disease has been of some standing, and therefore confirmed, when the granulations are firmly imbedded in the conjunctiva of the eyelids, and friction has produced corneal vascularity, softening and pannus, then there is the beginning of an interminable course of treatment and perplexity.

He has never seen any satisfactory result accruing from the use of astringents, of which blue-stone enjoys the greatest favor.

Inoculation with blennorrhagic pus is highly spoken of as a curative agent by competent authorities, but he has never availed himself of this remedy, because in all his visits to those hospitals where this treatment is resorted to, he has never seen a cure.

For a number of years he has adopted a uniform method of treating this disease, and found the result so satisfactory that he has seen no reason ever to depart from it. The remedies on which he relies are—1, scarification; 2, syrup of tannin; 3, friction; 4, solution of atropine; 5, astringent collyria.

Given, a typical case of granular conjunctivitis with pannus: he everts the upper and lower eyelids, and, with Desmarre's scarificator, makes free incisions into the conjunctiva of the eyelids, including the *cul-de-sac*. The incisions are only so deep as to allow free exit to the deposits, without encroaching on the tarsal surface; and with the finger he gradually squeezes out the granules. The surfaces being sponged with warm water to encourage bleeding, a solution of atropine is applied to the part, followed up with a borax lotion in warm

water three times a day. Two days afterwards the eyelids are again everted, and the *syrup of tannin* poured upon them.

599. ℞. Acidi tannici, ʒij.
Syrupi simplicis, f.ʒj. M.

The lids being drawn forwards, the conjunctival surfaces are then rubbed against each other, with the view of disintegrating any of the deposits which may still remain there. The scarification is again resorted to in a fortnight or three weeks later, according to the exigencies of the case; but the syrup of tannin and friction are applied every second or third day. By these means the granulations are gradually got rid of, and the thickening and corneal pannus disappear, the cornea gradually recovering its transparency.

DR. A. M. ROSEBURGH, SURGEON TO THE TORONTO EYE AND EAR INFIRMARY.

In simple catarrhal conjunctivitis this surgeon directs the eye to be bathed frequently, and simple cerate to be applied to the edge of the eyelid at bed-time. A solution of atropia (gr. ij) applied occasionally to the conjunctiva will reveal, by its effect on the shape of the pupil, whether the iris is involved or not. This answers for the first week.

In the second week the use of local applications should begin; either:

600. ℞. Hydargyri oxidi rubri, gr. viij.
Glycerini amyli, ʒj. M.

Or:

601. ℞. Argenti nitratis, gr. iij.
Aquæ destillatæ, ʒj. M.

The latter may be gradually increased to a strength of gr. xv. during three weeks of treatment. It should be dropped into the eye three or four times a day, and the eyes bathed afterwards in warm water.

After the first week of treatment, when a stronger solution is being used, the eyelids should be everted, and the remedy applied to the palpebral conjunctiva with a camel's-hair brush, and in a few seconds any excess of the solution washed off with warm water before the lid is replaced. The stronger solutions are applied in this manner once a day, and, in addition, the three-grain solution may be still used two

or three times a day, while the ocular conjunctiva remains congested and œdematous. The treatment is continued until both the ocular and palpebral conjunctiva have resumed the healthy condition. When the plasma of the red oxide of mercury is used, it is applied to the everted palpebral conjunctiva twice a day, (and not washed off,) and no other local application used, with the exception of the occasional use of atropia solution, and fresh lard applied to the edge of the eyelids at bedtime.

In "granular lids" a stimulating plan should be adopted. In chronic cases, where the patient is in robust health, with no phlyctenular or ulcerative inflammation of the cornea, either a solution of nitrate of silver (thirty grains to the ounce) may be applied, the solid sulphate of copper, or the mitigated stick of nitrate of silver and nitrate of potash. In cases, however, either recent or chronic, where there is present, or where there is a tendency to, phlyctenular or ulcerative inflammation of the cornea, the nitrate of silver or sulphate of copper is inadmissible. Again and again one sees cases put back for weeks by an attack of phlyctenular keratitis, evidently caused by the use of the "blue stone" or nitrate of silver.

In these cases the plasma of the red oxide of mercury, of the strength of gr. j–℥j, may be applied morning and evening, without, however, brushing or syringing with water, the everted lid returned with the oxide adhering to the palpebral conjunctiva. The eyelids are bathed occasionally, during the interval, with very warm water. The application of the red oxide is not so stimulating as the sulphate of copper or nitrate of silver, and consequently the treatment extends over a longer period; but there is no local application that is so well adapted to the corneal complications, and none that will more certainly prevent their recurrence. Of course the general condition of the patient must not be neglected. A generous diet should be allowed, and when necessary, tonics prescribed.

In phlyctenular or pustular ophthalmia, with photophobia and lachrymation, the best local treatment, in the case of young children, is to keep the eye constantly under the influence of atropine. The four-grain solution is applied twice a day, the excessive watery secretion being first removed, to prevent the dilution of the atropine solution. Any accompanying eczema or ulceration of the nasal mucous membrane may be treated with the local application of the nitrate of mercury ointment or the plasma of the red oxide. Children under five

years of age should be put on a milk diet, combined either with stale bread or well-cooked oatmeal porridge. The less the deviation from this wholesome diet the better. If the milk is rich in cream, the administration of cod-liver oil is rendered less necessary. A tonic course of treatment is invariably indicated, and there is probably no preparation better adapted to these cases than that of the syrup of the iodide of iron.

In the local treatment of phlyctenular inflammation, either of the conjunctiva or cornea, in adults, the plasma of the red oxide of mercury may truly be said to be a specific. The plasma is applied twice a day, as follows: Instead of applying it simply behind the lower eyelid, as is done by some practitioners, the eyelashes of the upper eyelid are held by the thumb and finger of the left hand, and the lid drawn forward. A small quantity of the plasma is now pushed up under the lid with a camel's-hair brush. Before the brush is withdrawn, the lid is pressed down, so as to retain the plasma; and on the removal of the brush, the oxide is well diffused over the eye by rubbing the eyelid over the eye. The treatment, in any case, should be commenced with the least quantity that will adhere to the end of the brush, and the quantity increased as it is tolerated. In cases of ulceration, where the patient can keep the eye steady, the plasma should be applied directly to the affected part, and allowed to remain a few seconds, or so long as the eye can be kept open. Where the case is complicated with "granular lids," the oxide is applied to the everted palpebral conjunctiva, and allowed to remain about half a minute before the lid is closed.

The strength generally used is one grain to the drachm; but in some cases, where the patient has been under treatment for several weeks, a preparation of double that strength (two grains to the drachm) is frequently well borne, and the case improves more rapidly.

It is not easy to have the plasma properly prepared. The proper formula is to make simple plasma, or *Glycerinum Amyli*, B. P.: take 1 oz. starch and 8 fluid oz. pure glycerine, rub the starch with an ounce of distilled water till quite blended, then add the glycerine and apply heat, gradually increased, till a thick jelly is produced. The preparation must be constantly and thoroughly stirred while making, and if an appearance of granular lumps is shown, squeeze the product before it is cold through cheese-cloth or doubled muslin, previously well washed to remove any loose fibres.

To make the mercurial plasma, it is necessary to have a perfectly smooth and even-surfaced mortar and pestle, in order to obtain the oxide in an impalpable powder. While triturating, keep it moist by the addition of rectified spirit from time to time. Care is also required to keep the powder, which may adhere to the pestle, scraped off very frequently. When thoroughly triturated, the simple plasma is added in the desired proportion and mixed thoroughly.

The efficiency of the trituration may be best tested by rubbing a few grains of the plasma on a piece of fine white paper. On holding this up to the light, there should be no appearance whatever of any specks.

PROF. DAVID W. YANDELL, M. D., LOUISVILLE.

This surgeon insists on the importance of constitutional treatment in trachoma, iron and quinine with fresh air, bathing and good diet. Locally he makes free scarifications of the granulations, promotes the bleeding by hot water, and applies the smooth crystal of sulphate of copper. The pain is best relieved by hot water. The patient is directed to bathe the eyes several simes daily in salt water. To prevent the gluing of the lids, he directs the use of:

602. ℞. Unguenti hydrargyri oxidi rubri, ℥j.
Olei morrhuæ, f.℥j. M.
Rub at night on the margin of the lids.

DR. MARTIN F. COOMES, LOUISVILLE.

This ophthalmologist severely condemns (*Medical and Surgical Reporter*, August, 1875,) the use of nitrate of silver in acute conjunctivitis (catarrhal ophthalmia.) Out of over ninety cases he had treated by simpler means, not one resulted in the least impairment of vision. In purulent cases he cleansed the eye frequently with warm water and collyria of alum, gr. ij to water f. ℥j. When the discharge commenced to diminish, a solution of sulphate of copper, from ten grains to the ounce to a saturated solution, was applied to the everted lid once every two or three days. The early stages of the milder form were treated with:

603. ℞. Sodii boratis, gr. x.
Aquæ camphoræ, f.℥j. M.
Apply every hour or two.

In later stages, a weak solution of sulphate of copper, or:

604. ℞. Acidi tannici, gr.iij–x.
Aquæ, f.℥j. M.

MR. GEORGE LAWSON, F. R. C. S., LONDON.

In the treatment of *acute conjunctivitis* (catarrhal ophthalmia,) this author recommends that every two or three hours, or oftener, if the case be a severe one, the eyes be bathed with one of the following lotions, being careful, at each application, to permit a small portion to flow into the eyes:

LOTIO ALUMINIS.

605. ℞. Aluminis, gr. vj.
Aquæ destillatæ, f.℥j. M.

LOTIO ALUMINIS MITIOR.

606. ℞. Aluminis, gr. iv.
Aquæ destillatæ, f.℥j. M.

LOTIO ALUMINIS CUM ZINCI SULPHATE.

607. ℞. Aluminis, gr. iij.
Zinci sulphatis, gr. j.
Aquæ destillatæ, f.℥j. M.

Cool water should be employed between the times of these applications, to keep the eyes free from discharge.

A solution of nitrate of silver (gr. j–ij to the ounce) is useful particularly when there is chemosis of the conjunctiva and swelling of the lids. Two or three drops of this should be dropped in the eye twice a day.

In chronic and purulent cases, he recommends as local applications, when there is any extra secretion present, stimulating drops or lotions, such as what he terms his

GUTTÆ ARGENTI NITRATIS.

608. ℞. Argenti nitratis, gr. j.
Aquæ destillatæ, f.℥j. M.

GUTTÆ ZINCI SULPHATIS.

609. ℞. Zinci sulphatis, gr. j–ij.
Aquæ, f.℥j. M.

These solutions should be brushed over the lids of the eye twice a day.

If there be no abrasion of the cornea, the following lotion will be useful:

610. ℞. Plumbi acetatis, gr. ij.
Acidi acetici diluti, ♏ ij.
Aquæ destillatæ, f. ℥ ss. M.

At night, if there be much secretion from the Meibomian follicles, the tarsal edges of the lids should be anointed with:

UNGUENTUM HYDRARGYRI NITRATIS DILUTUM

611. ℞. Unguenti hydrargyri nitratis, ʒ j.
Unguenti cetacei, ℥ ss. M.

Stimulating applications should not be made to the eye when there is much photophobia, for they then fail to do good, and only act as irritants.

PROF. GUNNING S. BEDFORD, NEW YORK.

612. ℞. Hydrargyri chloridi corrosivi, gr. j.
Ammoniæ muriatis, gr. iv.
Aquæ destillatæ, f. ℥ vj. M.
Make a solution.

For *purulent ophthalmia in new-born infants*, the eyes to be washed with the solution several times during the day. The applications should not be confided to the nurse; they should be made by the practitioner himself, as follows: The child being placed on its back, resting in the lap of the nurse, the practitioner, placing its head on his knee, with a soft sponge, moistened with tepid water, cleanses the eyes. The lids are then gently separated, and after everting them, the accumulated matter is removed, and the collyria applied.

It may become necessary to touch the inflamed conjunctiva, by means of a camel's-hair pencil, with the following solution once a day:

613. ℞. Argenti nitratis, gr. ij.
Aquæ destillatæ, f. ℥ j. M.
Make a solution.

When the child falls asleep, the outside borders of the lids, in order to prevent their agglutination, should be smeared with fresh, unsalted butter, fresh olive oil or, what perhaps is better, the red precipitate ointment. The bowels are to be kept regular with castor oil or flake manna in solution, and, above all, the eyes are to be kept clean and protected against light.

MR. A. R. HALL, SURGEON, R. A.

This surgeon treats cases of infants suffering from purulent ophthalmia by simply painting the lower eyelids, upper parts of the cheeks and temples, with the pure balsam copaiva. They get well quickly, without damage to the eyes. (*Practitioner*, April, 1875.)

DR. B. A. POPE, OF NEW ORLEANS.

In reference to *membranous and diphtheritic conjunctivitis*, that is, when there is infiltration of the conjunctiva, with diminished vascularity and tendency to the formation of false membranes, cauterization and the use of astringents are contra-indicated. Frequent *cleansing of the eye*, the application of *cold-water dressings*, and the careful use of *mercurials* are the principal means of treatment.

In the early stages of the disease, the *application of leeches* to the temple is often of decided advantage.

In a case of diphtheritic conjunctivitis, it is only when the second stage of the disease has arrived, namely that of restored vascularity and commencement of purulent secretion, that the use of nitrate of silver can be resorted to. The third stage, or that of cicatrization, can be but little benefited by treatment.

The solution of nitrate of silver preferred by our author is of the strength of gr. vj to f. ℥ j. In administering mercury to adults, he orders gr. $^1/_{10}$ of calomel every two hours, and mercurial inunctions upon the temple three times a day, or mercurial inunctions alone, upon the temple and in the axilla, every two hours.

GONORRHŒAL CONJUNCTIVITIS.

DR. ROGERS, OF MADISON, INDIANA.

614. ℞.	Acidi carbolici,	gr. j.	
	Atropiæ sulphatis,	gr. ss.	
	Zinci sulphatis,	gr. ij.	
	Aquæ destillatæ,	f. ℥ j.	M.

This solution is to be dropped into the eye every two hours, and applied constantly, with moist compresses externally.

Dr. ROGERS has proved the efficiency of this treatment in numerous cases of gonorrhœal conjunctivitis, with chemosis, great swelling of the lids, profuse purulent discharge, photophobia, etc. A week generally suffices for a cure in mild cases.

CORNEAL DISEASES.

OPACITY AND ULCERATION OF THE CORNEA.

MR. C. MACNAMARA, F. R. C. S., LONDON.

This writer believes that for the nebula and haziness resulting from chronic granular conjunctivitis, *tannic acid*, dusted into the afflicted eye once or twice a day, affords the patient a better hope of relief than any other treatment. In the Westminster Ophthalmic Hospital, of which he is surgeon, is used, in cases of nebula and corneal opacities:

615. ℞. Oxide of zinc,
Armenian bole, ää ʒij.
Olive oil, f.ʒiv.
Ammoniated mercury, ʒj.
Lard, ʒiv. M.

MR. T. HOLMES, LONDON.

The opacity of the cornea remaining after keratitis may often be greatly benefited by injecting under the conjunctiva (after all inflammatory action has ceased) a solution of common salt:

616. ℞. Sodii chloridi, gr. x.
Aquæ destillatæ, f.ʒj. M.
A few drops to be injected under the conjunctiva once a fortnight.

The treatment by *tattooing* remains as a last resort to remove the disfigurement.

In the opacity or ulceration of the cornea so common in small-pox, the following ointment should be applied to the cloudy or opaque cornea once daily with a camel's-hair pencil:

617. ℞. Hydrargyri oxidi flavi, gr. xij
Olei olivæ, f.ʒij.
Adipis præparati, ʒvj. M.
For an ointment.

This ointment is known to be of great use in severe conjunctivitis, and it was first used by Dr. GAYTON for conjunctivitis in variola, in cases in which opacity of the cornea co-existed; and he found that it had a most marked effect on the latter.

The red oxide of mercury is also applied to opaque spots on the cornea.

It is most important to examine the eyes of patients with small-pox daily, and the moment the slightest nebula is discovered, to apply the ointment, when the increase of opacity will not only be prevented, but a cure will probably be effected in a few days.

The medicinal treatment of opaque lens, with the view of its removal, or clearing up, has thus far given rather poor results. But in the early stages of inflammatory conditions, likely to lead to cataract by contiguity, much may undoubtedly be accomplished. A few years ago, M. LAVIGNOT proposed the use of oleaginous solutions of *phosphorus*, applied to the conjunctiva, and rubbed into the forehead, and asserted that he had proved that this had produced the removal of opacity of the lens in several cases; but this assertion has not been substantiated by others.

DR. JOHN GREEN, OF ST. LOUIS.

Dry calomel, in impalpable powder, dusted in very minute quantity into the eye once a day, is a highly-valued remedy in the healing stage of corneal ulcers. PAGENSTECHER'S ointment (see F. 590) answers well in cases which require stronger stimulation.

MR. T. HOLMES, OF LONDON.

The general directions of this surgeon for the management of corneal ulcer are to obtain repose of the sphincter of the pupil and the muscles of accommodation by means of atropine, to prevent friction of the lids by a well-applied compressive bandage, to employ hot fomentations, tonics and nutritious diet.

Mr. JONATHAN HUTCHINSON remarks in one of his lectures that no operation in corneal ulcer ought to be resorted to until after an efficient trial of the *hot-fomentation* plan. In a large majority of cases, corneal ulcers with hypopyon, if seen in an early stage, will do perfectly well if the patient be put to bed and the eye fomented constantly with a hot belladonna solution; but it must be almost literally constant, and as hot as the patient can possibly bear it. Anything short of this in these dangerous cases is usually only waste of time.

In regard to operating, he adds that in many cases, after an iridectomy, the patient's pain is at once permanently relieved; the hypopyon never re-forms, and the ulcer steadily heals afterwards. As

there is generally a central opacity resulting from the ulcer, the iridectomy method of treatment has the additional advantage of securing beforehand an artificial pupil.

IRITIS.

MR. ROBERT BRUDENELL CARTER, F. R. C. S., LONDON.

On the treatment of iritis this author says the first principle to be borne in mind is to *avoid all irritants*, such as astringents, nitrate of silver lotions, etc. The eyes should be given complete functional rest, and, to prevent adhesions, the cardinal point is the use of atropine, which should never be omitted, save in excessively rare cases where it produces local inflammatory action. A four-grain solution should be applied at intervals of an hour till complete dilatation is obtained, and this should be kept up by a single drop of the solution night and morning. When the atropine, from any cause, fails to dilate the pupil fully, *the use of mercury is imperative*, pushed as rapidly as possible to its constitutional action, as shown by the slight mercurial line on the gums. This should be maintained until the resolution of the inflammation is accomplished. But the condition of salivation should never be brought about designedly.

During the whole period of treatment the eye should be closed and protected by a compressive bandage, applied with comfortable tightness over a pad of jeweler's cotton-wool. By this means the patient will be enabled to walk abroad without restraint, so long as he avoids injurious fatigue or hurry. Sometimes, especially when resting at home, a poultice will be a pleasant substitute for the pad and bandage; but neither the one nor the other should be applied until a quarter of an hour after the instillation of the atropia, lest the solution should be absorbed and removed from the eye.

When the inflammatory symptoms are rapidly subsiding, the mercury, and probably the opium, may be entirely laid aside. But the continued use of atropia is necessary in order to prevent relapse; and the pupil should be kept fully dilated until the eye is quite well. As long as the pupil is dilated the eye does not participate in the functional changes of its fellow, to which, therefore, moderate use may be

permitted. An attack of any severity usually leaves behind a temporary proneness to conjunctival irritation, which the atropia may often assist to keep up. For this the cautious use of a mild astringent, such as:

618. ℞. Zinci sulphatis, gr. iv.
Aquæ destillatæ, f. ℥ iv. M.

This collyrium will usually be found effectual.

It will often be desirable to protect the eye from the glare, wind and dust, after a severe attack, by the use of blue glasses. These are now made of a watch-glass form, for the purpose of excluding side light.

MR. A. R. HALL, SURGEON, R. A.

This surgeon (*Practitioner*, April, 1875,) records the very excellent results he has had with *balsam of copaiva* in iritis and sclerotitis. He gives to adults f. 3 ij, in mucilage, three times a day. The pain should be diminished in twenty-four or forty-eight hours, and the sight restored.

GEORGE LAWSON, F. R. C. S., SURGEON TO THE ROYAL LONDON OPHTHALMIC HOSPITAL, MANSFIELD.

In the treatment of *syphilitic iritis*, our author regards mercury as imperatively called for. It should be given in doses sufficiently large and frequent to bring the patient quickly under its influence, but as soon as the gums begin to grow tender and spongy the quantity should be diminished, so as to avoid anything like profuse salivation. A piece of the size of a hazel nut, of the *unguentum hydrargyri*, may be rubbed into the axilla night and morning, or a pill with calomel and opium may be administered.

619. ℞. Hydrargyri chloridi mitis, gr. j–ij.
Pulveris opii, gr. ¼–ss.
Confectionis rosæ, q. s. M.
For one pill. Thrice daily.

If the patient be feeble, quinine may be prescribed at the same time, and it may be conveniently ordered in the following mixture:

620. ℞. Quiniæ sulphatis, gr. xij
Acidi sulphurici diluti, f. ℥ ij.
Tincturæ aurantii, f. ℥ vj.
Aquæ destillatæ, q. s. ad f. ℥ vj. M.
Tablespoonful, in water, thrice daily, while the mercurial inunction is used night and morning.

If the patient has already been salivated before he first comes under treatment, the following iodide of potassium mixture should be given:

621. ℞. Potassii iodidi, gr. xxxvj.
Potassii bicarbonatis, ʒj.
Infusi quassiæ, f.ʒ vj. M.
A tablespoonful thrice daily.

At the same time a slight mercurial action may be kept up by the use of the following:

UNGUENTUMA HYDRARGYRI CUM BELLADONN.

622. ℞. Extacti belladonnæ ʒj.
Unguenti hydrargyri, ℥ vij. M.
To be rubbed into the brow and temple, and allowed to remain on during the day.

When all the effused lymph has been absorbed, and the iritis has nearly subsided, the mercurial medicines should be omitted, but the iodide of potassium should be continued for two or three months, combined with a bitter tonic, or, if the patient is anæmic, with some preparation of iron, as the

MISTURA POTASSII IODIDI CUM FERRO.

623. ℞. Potassii iodidi, gr. xxxvi.
Potassii bicarbonatis,
Ferri et ammonii citratis, āā ʒj.
Aquæ destillatæ, f.ʒ vj. M.
A tablespoonful, in water, thrice daily.

If the iritis recurs after some months, or if it assumes a chronic form, the following mixture will be found of great service:

624. ℞. Hydrargyri chloridi corrosivi, gr. j.
Potassii iodidi, ʒj.
Tincturæ calumbæ, f.℥ ij.
Aquæ destillatæ, q. s. ad f.ʒ vj. M.
Two teaspoonfuls, in a glass of water, two or three times a day.

Atropia is essential in the treatment of every form of iritis, and should be ordered at the very commencement of the attack, and persevered in during its continuance. A solution, of the strength of gr. ij to aquæ f. ℥ j, should be dropped into the eye two or three times a day. When the atropia fails to give ease, or acts, as is sometimes the case, as an irritant, the following belladonna lotion may be employed:

LOTIO BELLADONNÆ.

625. ℞. Extracti belladonnæ aquosæ, ℈ ij.
Aquæ destillatæ, f.℥ viij. M.

Rheumatic Iritis also requires a moderately active mercurial treatment. F. 624 may be given during the day, and at night the following pill:

626. ℞. Hydrargyri chloridi mitis, gr. j.
Pulveris ipecacuanhæ compositi, gr. v. M.
For one pill.

Or the mercurial and belladonna ointment (F. 622) may be rubbed daily into the temple.

In some cases the treatment may fail to give relief. Then quinine, in two-grain doses, may be ordered with benefit. Or the quinine may be combined as follows:

627. ℞. Quiniæ sulphatis, gr. xij.
Tincturæ ferri chloridi,
Acidi nitrici diluti, āā f.℥ j.
Aquæ destillatæ, f.℥ vj. M.
A tablespoonful, in water, to be taken through a tube thrice daily.

When there is great photophobia and pain in the eye, the quinine or quinine and iron treatment, together with a mild mercurial inunction into the temple, will be found most useful. To relieve the pain, a fourth or a third of a grain of the *acetate of morphia* may be injected subcutaneously into the arm. Our author directs the following formula for the

INJECTIO MORPHIÆ.

628. ℞. Morphiæ acetatis, ℈ iv
Aquæ destillatæ, f.℥ j. M.

Rub the morphia gradually with the water, and add a few drops of dilute acetic acid, if necessary, for a perfect solution. Of this preparation, six minims contain one grain of morphia.

Turpentine has been prescribed with advantage in obstinate cases of *non-syphilitic iritis*. It may be ordered as follows:

629. ℞. Olei terebinthinæ, f.℥ iij.
Syrupi acaciæ, f.℥ iss.
Aquæ pimentæ, f.℥ iv. M.
A tablespoonful four or five times a day.

During the whole time the pupil should be kept well dilated by means of atropia or the belladonna lotion. (F. 625.)

N. C. MACNAMARA, PROFESSOR OF OPHTHALMIC MEDICINE, CALCUTTA.

630. ℞. Atropiæ, gr. iv.
Aquæ, f.℥j. M.

To be dropped into the eye, three times a day, in cases of syphilitic iritis in children.

Mercurial ointment should also be rubbed into the thighs every other night, for twenty minutes; and thirty drops of cod-liver oil, with one-half grain of iodide of iron, should be administered twice a day to an infant six months old. For syphilitic iritis, mercury, judiciously employed, is the sheet-anchor to be relied upon. The best mode of employing it in these cases is by inunction. Our author never prescribes mercury internally for children, nor does he find it necessary to push the treatment so far as to affect the gum.

According to MACKENZIE, and, indeed, all the best authorities, atropia ought to be employed as a collyrium in every case of iritis, and in all stages of the disease.

KERATITIS.

DR. LAURENCE TURNBULL, OF PHILADELPHIA.

The form of inflammation of the eyes known as "phlyctenular keratitis" occurs in children from the commencement of teething up to the eighth year. It is attended by excessive intolerance of light. The following collyrium will be found of value:

631. ℞. Hydrargyri chloridi corrosivi, gr. j.
Ammoniæ muriatis, gr. vj.
Tincturæ belladonnæ, f.℥ij.
Aquæ destillatæ, f.℥viij. M.

A teaspoonful of this, in a wineglassful of tepid water, to be applied frequently, with a pledget of lint on the closed lids.

The pupil should be maintained well dilated by the use of a solution of atropine. The eyes should be well protected from the glare of the light, and the constitution supported by bark and ferruginous tonics.

STYES (HORDEOLUM.)

DR. LAURENCE TURNBULL, OF PHILADELPHIA.

A stye generally arises from an obstruction of the follicles of the lid in an enfeebled constitution. The swollen follicle should be freely opened, the part allowed to bleed, and a hot fomentation applied. A general tonic and alterative course is also demanded. A combination of iron and quinine may be used, including *tinctura arnicæ*, gtt. xx, thrice daily. Locally, if seen early, touch the swelling with ointment of nitrate of mercury, a drachm to the ounce, or double that strength.

MR. R. B. CARTER, F. R. C. S., LONDON.

For the early dispersion of styes, this surgeon recommends that as soon as the pimple is perceived, the eyelash passing through it be extracted with a fine forceps, and a sharpened point of dilute *nitrate of silver* stick be immediately placed upon the mouth of the open follicle and held there steadily for a few seconds.

Other surgeons recommend touching the part with dilute *tincture of iodine.*

Mr. JOHN MARSHALL has spoken very highly of a solution of *oleate of mercury:*

632. ℞. Hydrargyri oleati, gr. v.
Acidi oleici, gr. c. M.
Apply to the follicles with a camel's-hair pencil.

Whatever local treatment is used, it is essential that if the styes have a tendency to recur in successive crops, constitutional treatment be invariably resorted to, as this recurrence generally signifies diminished vitality of the organism. *Quinine* is probably the most effective of all the agents which may be called in service. The *citrate of iron and quinine* is a valuable preparation in children, who are more subject than adults to this complaint. When, as is not infrequently the case, scrofulous symptoms are present, these must be combated as will be described hereafter. (Chapter XV.)

WOUNDS AND INJURIES.

BURNS AND SCALDS OF THE EYES AND LIDS.

GEORGE LAWSON, F. R. C. S., ENGLAND.

633. R. Glycerinæ,
Aquæ rosæ, āā f.℥ij.
Aquæ destillatæ, ad ℥viij. M.

A soothing lotion for washing the eye and lids in cases of burns and scalds. A few drops of olive oil should be dropped into the eye, and the lids then gently closed, and some cotton-wool laid closely over them, which may be kept in its place by a single turn of a light bandage. The dropping of the oil into the eye should be repeated two or three times during the day, and each time the bandage is removed the above lotion should be employed to remove any discharge which may have accumulated. This is the only treatment slight cases require.

ECCHYMOSIS BENEATH THE CONJUNCTIVA.

DR. A. H. JACOB, SURGEON TO DUBLIN EYE AND EAR INFIRMARY.

Sub-conjunctival ecchymoses are more usually caused by a slight scratch than by a heavy blow, and are very commonly the result of great straining on the part of the patient, either in coughing or retching, especially those who are in the anæmic condition, which encourages small hemorrhages under the skin, and in such cases there need be no injury at all. In this way ecchymoses are frequently observed in cases of purpura, and occasionally in Asiatic cholera. The effusion of blood beneath the conjunctiva may be distinguished from an other form of vascularity—

a. By its brilliant, uniform, scarlet, velvety surface, when recent, which completely hides the sclerotic.

b. By the absence of any visible blood-vessels.

c. By the irregular, ragged edge.

It may be so large as to occupy the whole sub-conjunctival cellular tissue, and to raise up the conjunctiva into folds, or it may amount to no more than a small scarlet spot on the sclerotic. It never invades the corneal conjunctiva, because the attachments of the conjunctiva

to the anterior elastic cornea are much closer than those which connect it with the sclerotic.

Surgical interference for sub-conjunctival hemorrhage is neither necessary nor effective. If the patient will wait, the ecchymoses are best let alone, and they will go through the sequences of color usual in the case of a black eye, until they finally disappear in eight or ten days. If the effusion be excessive in any one spot, the conjunctiva may, without fear of mischief, be divided, and the blood squeezed out; and if a patient be impatient for restoration of good looks, a lotion may be prescribed to aid absorption.

The following is the formula which Dr. JACOB has used:

634. ℞. Potass. iodid., ℥ ij.
Tr. arnic. montan., ℥ iss.
Aq. rosmarini, ad ℥ vj. M.
For a lotion.

The following collyrium, though inelegant, is more effective:

635. ℞. Ol. jecor. asel., ℥ j.
Pot. iodid., gr. v.
Iodinii, gr. j. M.
For a collyrium.

DR. CHARLES S. BULL, OPHTHALMIC SURGEON TO CHARITY HOSPITAL, NEW YORK.

In blows and other contused wounds of the eye, this surgeon observes (*American Journal of the Medical Sciences*, October, 1876,) that the great desideratum seems at first to be rather a negative one, not to do too much. With atropia, local blood-letting, and occasional resort to the influence of mercury, and enforced quiet in a moderately-darkened room, we can do much to counteract the effects of such injuries. Moreover, we should not be in too much of a hurry to advise the enucleation of such an injured eye, simply because vision seems irretrievably lost, and the eye apparently destroyed. Experience teaches us all that by careful and long-continued treatment, some sight may, in many cases, be restored. If the patient can be kept under constant observation, and no signs of sympathetic trouble have as yet appeared, and the injured eye is not certainly destroyed, the best surgery is not to enucleate. But the moment sympathetic irritation appears, there is but one course to pursue. If the patient cannot be kept under ob-

servation, then the best plan is to enucleate at once, and thus avoid the possibility of any future trouble.

Somewhat different advice is given by

DR. JULIAN J. CHISHOLM, OF BALTIMORE.

This surgeon states (*Virginia Medical Monthly*, August, 1875,) that the axiom "*that every lost eye from injury should be taken out*," has no qualification, and is absolute. No surgeon will ever do wrong who removes an eye lost through injury, whether, at the time of operation, the eye gives trouble or not. Whenever it is taken out, a dangerous enemy is surely gotten rid of.

A lost eye from accident is a deformed one, marred in its proportions or made conspicuous by the whiteness of its opaque lens, or exhibits a scarred surface and discolored iris, indicating the character of the injury which had destroyed the sight. Such unsightly eyes, from which the perception of light has forever departed, often flush up under the slightest exposure, and remain both a deformity and an ever-threatening source of trouble.

It is always best to remove the lost eye before the good one has become in any way affected. Should an active, sympathetic irritation be excited before this precaution has been taken, there is no surety that the good eye will not be more or less permanently injured by the inflammatory process. Sometimes the attack in the good eye does not yield at the moment the injured eye is removed, and in some cases the destructive process, once commenced, will go on in the good eye, notwithstanding the extirpation of the lost one.

One often sees patients with dangerous wounds of the eye experience such protracted suffering as to incapacitate them from all work for many months after the accident. In such cases, if the eyeball be extirpated, relief comes so promptly and decidedly that the patient is ready to resume his regular employment in a few days.

RÉSUMÉ OF REMEDIES

IN EYE DISEASES.

Alumen is one of the most esteemed ingredients in ophthalmic pharmacy. As an element in astringent collyria, it is, in many affections, unsurpassed. The usual formula at the Royal London Ophthalmic Hospital is:

636. ℞. Aluminis, gr. vj.
Aquæ destillatæ, f. ℥j. M.
For a collyrium. To be applied every quarter or half hour.

Or the following:

637. ℞. Aluminis, ℈ ij.
Extracti belladonnæ, ʒ ss.
Aquæ destillatæ, f.ʒ viij. M.
For a collyrium.

"Alum curd" may be made by adding ʒ ij of alum to a pint of milk and straining; or, by mixing ʒ ss of alum with the white of one egg. It is a soothing, popular application.

Amyl Nitrite has been used successfully in cases of amblyopia, by Dr. H. R. SWANZY. The inhalations were ten drops at a time. (*Medical Press and Circular*, Jan., 1877.)

Argenti Nitras. This powerful agent appears not to be so much used as formerly by ophthalmologists, as its place can often be supplied by less dangerous remedies. Its incautious use, when there are corneal ulcers, will result in unsightly deposits and opacities. In ophthalmia, its employment is very severely condemned as always needless, and often most hurtful, by various eminent surgeons. In acute conjunctivitis, a weak solution, gr. j–iij to aquæ f.ʒ j, is used; in granular lids, a stronger solution, gr. xx to aquæ f.ʒ j; or the eyelids may be everted and lightly touched with the caustic stick, either of full strength or mitigated. In tinea tarsi, the solid nitrate may be passed over the edges of the eyelids, first removing the eyelashes and the scabs.

Arnica is recommended by Dr. TURNBULL in styes. (Page 431.) Dr. JACOB employs it in conjunctival ecchymosis. (F. 634.)

Arsenicum. In strumous ophthalmia, Mr. T. A. ROBERT says he has never failed of success since he has adopted the treatment by liq. potassæ arsenitis, ♏ij–viij thrice daily in infusion of cinchona, and locally gtt. j of a solution of nitrate of silver, gr. ij to aquæ f.ʒ j, dropped into the eye every three or four days. (*Lancet*, Feb., 1877.) Mr. CARTER strongly advises it in the same disease, especially where there is much irritability.

Atropia. This indispensable agent is supplied in the British Pharmacopœia in an officinal solution, gr. iv to f.ʒ j. If a minim of this be dropped into the eye, it will in most cases produce in half an hour complete dilatation of the pupil. It is then that the power of accommodation becomes impaired, and near objects cannot be distinctly seen. In about an hour later, *i. e.*, an hour and a half from the instillation, there is more or less complete paralysis of accommodation, and no objects within twenty feet can be distinctly seen. When complete paralysis of accommodation is once produced, it often happens that normal accommodation does not return for a week or a fornight. By using a weak solution of atropine, it is very easy to cause mydriasis without paralyzing the accommodation; hence, for purposes of ophthalmic examinations, it is wise to use a minimum quantity of atropine; though, for therapeutic purposes, it is usually of extreme importance that the accommodation should be paralyzed. According to Mr. R. B. CARTER, the use of atropia is best accomplished by a solution in distilled water of the neutral sulphate, of the strength of two grains to the ounce. This solution, if the drug be pure and neutral, is absolutely unirritating to most eyes; and a

drop may be placed in the lower conjunctival fold, near the outer canthus, two or three times a day. For the purpose of making the application, there is nothing better than a goose-quill, cut to a blunt scoop. Should it cause pain, the atropia is either adulterated or the individual suffers from an idiosyncrasy. Atropine discs are also sold, which are convenient. Mr. WM. HARDMAN (*Lancet*, Nov., 1876,) gives the method he prefers as follows: "I wet the point of an ordinary mounted needle by touching the tongue with it, and then dip it into coarsely-powdered atropia; a small quantity adheres, and this is gently put inside the lower lid, and left there. The quantity I used is a small portion, about the size of a small pin-hole in paper; a little more or less is of no moment. No unpleasant effects have followed in any of the twenty-one cases in which I have used this method, although in several of them it was applied to both eyes. The form of atropia I use is the sulphate."

The value of atropia in almost all diseases of the eye is incalculable. It diminishes photophobia and blepharospasm; it lessens inflammation by contracting the ciliary vessels; it weakens intraocular pressure; and it causes sufficient local anæsthesia.

Belladonna, in extract or tincture, is still occasionally employed, although atropia has generally the preference.

Bismuth is occasionally chosen as a local application in chronic conjunctivitis and granular lids.

Boracium Acidum has been strongly advocated in both acute and chronic inflammatory conditions, by Dr. S. THEOBALD, of Baltimore. (*Pamphlet*, 1880.) He uses a solution of gr. iv to aquæ dest. f.℥j. It should not be stronger, nor should it be applied more than twice a day, as some irritation may follow. He has succeeded remarkably well in many cases of conjunctivitis, keratitis, pannus, etc., with this. Its influence is sedative or anodyne.

Carbolicum Acidum. Dr. J. J. CHISHOLM, of Baltimore, (*Virginia Medical Monthly*, Dec., 1877,) has used this agent extensively in eye surgery. It is his sovereign remedy for all warty formations about the eyelids. He also employs it in granular lids and in episcleritis, or subconjunctivital deposits. He uses the pure liquid acid. The pain of the application, though severe, lasts but for a few minutes.

Carbonicum Acidum has been used as a local anæsthetic in painful diseases of the eye.

Chloral Hydras, as a neurotic and a simple hypnotic, is invaluable. In many ocular affections, where we find wakefulness or restlessness, unassociated with pain, and due perhaps to mental worry or anxiety, chloral hydrate acts like a charm; and in such cases we should not fail to make use of this most valuable drug.

Chloroformum. According to Sir J. Y. SIMPSON, a few drops of chloroform evaporated on the palm of the hand, close to a photophobic eye, will enable it to bear the light without pain.

Copaiva. Mr. A. R. HALL has extolled the value of this substance in diseases of the conjunctiva and iris. (See page 427.)

Cosmoline, or *unguentum petrolei*, has been very successfully employed as an excipient in ointment for the eye. It is perfectly homogeneous, bland, and unalterable by heat and exposure.

Croton Chloral has been highly praised for its power in relieving ophthalmic neuralgia and irritability of the eyeball. Severe photophobia may be promptly relieved by the administration of gr. v–xv, thrice daily. Mr. BADER, of Guy's Hospital, thinks these good effects, however, are limited to young people, and particularly to cases of syphilitic corneo-iritis. The disagreeable taste of the medicine is a bar to its exhibition.

Cupri Sulphas is an indispensable local stimulant in chronic conjunctivitis, etc. The pain its application causes may be greatly lessened by sprinkling a little calomel over the parts touched, a few minutes after the application, or even immediately. (Dr. CARL PICK.)

Daturia. In 1861, Dr. JOBERT (de Lamballe) proposed the substitution of the alkaloid of the *Datura Stramonium* (daturia) as a mydriatic instead of atropia. He concluded that daturia was three times as strong as atropia; that its instillation into the eye caused no pain or confusion to vision, and that its effects were more constant than those of atropia, and its action more persistent. Dr. FANO has published (*Journal d'Oculistique et de Chir.*, August and September, 1875,) numerous observations illustrating the employment of daturia as a mydriatic. The instillation of a solution of daturia (1 part in 600) causes, he says, dilatation of the pupil in twenty-five minutes, and this, too, in some cases of keratitis, in which atropia has failed to produce any effect.

Duboisin, the alkaloid of the Australian plant, *Duboisia myosporoides*, has been found to be a potent mydriatic, and has come into free use in Europe. It is as yet undetermined that it possesses qualities superior to atropia.

Ergotina. In conjunctival inflammation, Dr. PLANAT, of Nice, recommends from one to one and a half grammes of ergotine in twenty of glycerine or rose-water, of which from eight to ten drops are to be inserted in the eye every two hours. Where there is violent inflammation of the eyelids or distention of the conjunctiva, a rag wetted in this mixture should be left on the parts for some hours. In general, two or three days suffice for the subdual of the most intense blepharo-conjunctivitis. Dr. PLANAT has employed the ergotine in this way, with invariable success, for several years past. (*Bull. de Therapeutique*, 1878.) Dr. A. S. CAMPBELL uses ʒj of the fluid extract to ʒ vij of water as a collyrium. (*Trans. Med. Assoc. Georgia*, 1880.)

Eserine. The attention of ophthalmologists has been called to the value of the extract of the Calabar bean, and its alkaloid, eserine, by various writers. Dr. A. WEBER (*Graefe's Archiv.*, Bd. XXII.,) states that the sulphate of eserine is ten to fifteen times more powerful than the extract. One drop of a one per cent. solution of eserine begins, after five minutes, to develop its effect upon the ciliary nerves, and produces, within twenty minutes, an extreme contraction of the pupil, which lasts ten hours. He believes that Calabar ought to be substituted for atropia in all those affections of the cornea which call for a diminution of the pressure upon the posterior surface of the cornea. These include keratocele, conical cornea, old maculæ corneæ, and especially in deep and progressive ulcerations, either in the centre or at the margin of the cornea, as they occur in old and debilitated persons, or in children in

connection with blennorrhœal conjunctivitis. In these cases the Calabar achieved its most brilliant triumphs; it prevented the perforation of the ulcer; it guarded against hernia of the iris and the subsequent staphylomatous expansion of the cornea; it checked the destructive progress of the ulceration, and caused the ulcer to rapidly fill up and cicatrize; and it accomplished all this without the aid of bandages or any other means, except the cauterization of the blenorrhœal conjunctiva. While highly lauding the Calabar for its excellent effect upon *deep* ulcers in the cornea, WEBER states that he could not recommend its use in *superficial* and vascular ulcerations of the cornea. Here the good effect of atropia with a proper bandage remains unquestionable. Prof. GUBLER states that the disturbances of vision which succeed acute and sometimes chronic diseases, and which are due to consecutive paralysis, characterized by asthenopia and debility of the muscles of the eye, may be treated successfully by Calabar bean. In asthenopia, a few drops of solution of sulphate of eserine ($\frac{1}{500}$ to $\frac{1}{200}$) put into the eye, will render the vision quite distinct in an hour or two. In presbyopia also, Prof. GUBLER has applied eserine with advantage. He has found eserine to be of extreme value in retarding the advance of presbyopia. (*Gaz. Habd.*, February 4th, 1876.) Dr. WECKER has spoken of its value in suppuration of the cornea following the extraction of cataract. As soon as the edges of the wound grow hazy, the aqueous humor turbid, and the secretion of the conjunctiva is increased, the wound to its entire extent is reopened with a fine spatula, in order to draw off all the aqueous humor. Eserine is instilled every hour or thirty minutes, and the eye washed frequently with a warm solution of carbolic acid (one part to one thousand parts of water.)

Gelsemin has been recognized as a valuable addition to the drugs which have a specific effect on the eye.

Glycerina is used as an ingredient in ophthalmic plasmata.

Grindelia Robusta. This plant has been lauded as a specific in iritis, no matter from what cause. It is given internally, f.℥j of the fluid extract four times a day; and locally, cloths wet with a solution of one part of the fluid extract to four of water. (HENRY M. FISKE, *Pacific Medical and Surgical Journal*, August, 1875.)

Hydrargyrum. The various preparations of mercury are extensively employed in ophthalmic therapeutics. The *chloridum corrosivum* is used in solution in purulent ophthalmia by Professor BEDFORD (F. 612), and by Dr. TURNBULL in keratitis (F. 631.) The *chloridum mite* may be insufflated as a dry powder in corneal ulcer (page 425); internally it is constantly employed to produce the constitutional effect of the drug in syphilitic and general iritis. The *oleate* is highly extolled in blepharitis, tinea tarsi and similar affections. The *oxydum rubrum* and *sulphas flava* are invaluable in numerous combinations for various forms of ophthalmai. (See formulæ above.) In fine, as has been lately remarked by a specialist in this department, Mr. TALFOURD JONES, "mercury, by many, is supposed to have gone out of fashion, but ophthalmologists know better than to discard so valuable are medial agent. The late Dr. ANSTIE believed mercury to have some special elective affinity or special action upon the parts which are supplied by the fifth nerve. It probably does exert a more marked influence upon the ocular tissues than

upon any others. It must ever be one of our most potent and useful remedies.

Hyoscyamin has been used successfully as a mydriatic by Dr. PFLUEGER, of Lucerne.

Iodinium, as a stimulant and counter-irritant, has frequent applications in the therapeutics of the eye.

Iodoformum is often useful in granular lids, phlyctenular and pustular ophthalmia, corneal ulcer, keratitis, blepharitis, etc. It should be reduced to very fine powder and dusted freely over the affected surface, or mixed with three parts of *unguentum petrolei*. It should not be used in acute inflammatory conditions.

Morphia is indispensable, and may be used in any of the usual manners. Mr. R. BRUNDENELL CARTER very truly says that "no eye will get better whilst it is acutely painful, so that acute pain must always be subdued as a condition antecedent to recovery." For the relief of acute pain, we have no remedy comparable to morphia, and it should be freely used.

Oleum Ricini. Dr. RINGER observes that a drop of castor oil introduced into the eye will often allay pain and intolerance of light produced by a fine irritant, such as sand.

Opium. Tincture of opium and solutions of morphia dropped into the eye cause smarting, redness, and slight inflammation of the conjunctiva. Such stimulation sometimes improves the condition of the membrane. Their uses are, however, chiefly internal, to relieve pain, or by hypodermic medication. There are certain forms of iritis in which the acuteness of pain is a very prominent symptom; and it was chiefly in cases of this class that the late Mr. ZACHARIAH LAURENCE succeeded, some years ago, in bringing about a cure by the use of large doses of opium or morphia alone. He kept his patients in a state of semi-narcotism for several days, or until all symptoms of acute inflammation had subsided.

Phosphorus has been suggested for the dispersion of corneal spots. (Page 425.)

Physostigma and Physostigmine. The uses of the Calabar bean have been discussed under *Eserine*.

Pilocarpin has been used as a myotic by various oculists. Its results differ from those produced by eserine sulphate, in the facts that less conjunctival irritation, less supra-orbital pain and less spasm of the accommodative power seem to be induced, while the contraction of the pupil and the temporary myopia correspond in degree with those following the use of eserine. In these respects pilocarpine offers advantages over eserine.

Plumbum. Various preparations of lead are valued in affections of the eye. Of the *carbonate*, ʒ ij to ℥ j of simple cerate is an excellent unguent in persistent swelling and redness of the lids (blepharitis.) In weakness and irritability of the eyes, painting the exterior of the lids many times daily with a weak solution of the *subacetate*, gtt. j to aquæ f. ℥ j, followed by anointing with cold cream at night, is often successful. (HARTSHORNE.) As a collyrium, the *acetate*, gr. ij-iv to aquæ f. ℥ j, is very extensively employed.

Quinia, in weak solution, gr. ij to aquæ f. ℥ j, is an excellent wash for slight conjunctivitis. When required internally, Mr. R. B. CARTER recommends:

638. ℞. Quiniæ sulphatis, gr. j.
Ferri et potassii tartratis, gr. ij.
Morphiæ sulphatis, gr. $\frac{1}{12}$. M.
For one pill.

Of this combination he says: "I have also found this formula to be of the greatest possible value in many cases of eye-disease in which local changes were progressing too rapidly to be overtaken by the use of a grain or two of quinine twice or thrice a day as a 'tonic,' but in which they were promptly arrested when the patient was brought under the influence of the specified combination."

Salicylicum Acidum. Dr. LEONARD WHEELER has urged the value of this remedy in iritis. (*Boston Medical and Surgical Journal*, Feb., 1877.) He uses it internally in the following formula:

639. ℞. Acidi salicylici, ℥ v.
Sodii biboratis, ℥ iv.
Aquæ, f.℥ vj. M.
One to two teaspoonfuls hourly for several hours at the onset of the attack.

Sassafras Medulla, steeped in water, gives a soothing, glutinous liquid much employed as a local emollient in inflammation of the eyes.

Sodii Benzoas. It is said, in the *Lyon Médicale*, March 7th, 1880, that Dr. DOR has used the benzoate of sodium with great success in the purulent ophthalmia of infants, and also in gonorrhœal ophthalmia, recovery taking place in a few days, without any opacity being left. He kept iced compresses constantly to the eye. The benzoate of sodium was employed in a twenty per cent. solution, and tannin in a ten per cent. solution, ten drops being instilled every three minutes. All secretion which issued from the eye was removed by means of a wash consisting of a hundred per cent. solution of the benzoate.

Sodii Biboras. Borax is esteemed a useful addition to moderating astringent collyria; gr. x to aquæ camphoræ f.℥ j.

Sodii Chloridum. Washing the eyes daily with a solution of common salt, ℥ j to Oij, is of service when weak and irritable.

Stramonium is principally employed through its alkaloid, datura, which see.

Strychnia, by hypodermic injection, has been used very successfully in amaurosis and amblyopia (above); also in ptosis and blepharospasm, and entropion.

Tannicum Acidum is one of the most valuable astringent, non-irritating topical applications.

Terebinthinæ Oleum is used as a rubefacient.

Zincum, in various forms, is in frequent use. The *oxide* is an ingredient in numerous soothing unguents. A solution of the *sulphate*, gr. ij–iv to aquæ f.℥ j, is the usual strength. It may be advantageously combined, as:

640. ℞. Zinci sulphatis, gr. iv.
Morphiæ sulphatis, gr. ij.
Atropiæ sulphatis, gr. j.
Aquæ rosæ, f.℥ j. M.
For a collyrium.

Bandaging. In many diseased conditions of the eye, it becomes necessary that the movement of the lids be restrained. For this purpose, oculists employ the "compressive bandage." This is composed of a small piece of fine linen to cover the lids, some carded cotton-wool for padding, and a roller, about an inch and a half wide and nearly two yards long, formed of any fine elastic material, but preferably either of what is called "water-dressing bandage" or of flannel gauze. The free end of the roller should be placed on the forehead, over the affected eye, and the first turn should be made across the forehead and round the head horizontally, so as to secure the end. When the roller reaches the forehead over the sound eye for the second time, it should be inclined downwards, carried under the lobe of the ear, round the occiput, under the lobe of the second ear, and then upwards across the face, over the affected eye, to the forehead. Before the roller is brought over the affected eye, the small piece of linen should be placed upon the closed lids, and all the hollows of the orbit should be filled and padded with the cotton-wool, in sufficient quantity to allow the roller to exert distinct but gentle and uniform pressure on the parts beneath. When the roller reaches the forehead it should be secured to the horizontal turn with a pin, and then a second horizontal turn all over will complete the application. By varying the quantity of wool and the degree of tightness of the roller, any desired amount of pressure may be exerted by this bandage, which, if carefully applied, is very little liable to be displaced. Too much care cannot be taken in filling the orbital hollows, and in so distributing the wool that its pressure may be uniform; because if a bunch of wool were simply applied to the lids over the convexity of the globe, and then bound tightly on, the effects of such a proceeding might often be disastrous. (CARTER.)

Blisters applied to the temple, behind the ear or to the nape of the neck are useful derivatives in inflammatory and painful affections of the eye.

Cold, in the form of ice and iced water, is much used in Europe for inflammations of the eye. Pounded ice may be suspended from a frontal band in a rubber bag over the organ.

Collyria. The following general remarks may be made on eye-washes and their employment: *Cautions.* 1. The stronger collyria are often unnecessarily employed, and are capable of doing mischief. 2. Collyria so strong as to produce pain tend, in the opinion of oculists, to induce subsequent chronic inflammation. 3. Those containing *lead* or *nitrate of silver* are never to be used when ulceration of the cornea exists, as they are apt to leave a permanent opaque cicatrix. 4. Those containing *nitrate of silver* sometimes give a blackish or bluish discoloration to the conjunctiva. Collyria are astringent, (alum, borax, tannin, acetate of lead, etc.,) emollient, (sassafras pith, flaxseed, slippery elm,) stimulant, (weak solutions of sulphate of zinc or copper, nitrate of silver, vinum opii, etc.,) sedative, (weak solutions of atropia, extract of belladonna, hyoscyamus or stramonium, solution of subacetate of lead, etc.,) or escharotic, (saturated solutions of nitrate of silver, sulphate of copper, alum, etc.) The proper use of ordinary collyria, especially in children, is not sufficiently attended to. A simple and efficient way is to place the child, with its arms straight by its sides, upon a shawl or on a long towel, and then swathe it around a few times in this, leaving only its

head out. So swathed it cannot move, and one person, unassisted, can do all that is required to the eyes. The eyelids being now gently separated without pressing on the eyeball, the discharge should be wiped away, and the eyelashes cleansed with tepid water and small pieces of rag, which should be immediately burned. Next the conjunctival pouch under the upper and lower eyelid should be carefully syringed out with tepid water; for this a common pewter squirt will do. When the pus is thoroughly removed, some of the collyrium should be dropped into the eye, and diffused beneath the eyelids by moving these lightly over the cornea, or it may be injected under them with the squirt. After this the eyelids are dried, and a little simple ointment is smeared along their edges, in order to prevent the eyelashes becoming glued together.

Counter-irritation, by rubbing aqua ammoniæ over the temples, by tincture of capsicum, tincture of iodine, etc., is often available to relieve pain and the sense of tension.

Electricity has been tried in a number of diseases of the eye. Its chief successes have been in paralysis of the muscles of the eye, in asthenopia with hyperæsthesia of the retina, (for which complaint Drs. BEARD and ROCKWELL say electrotherapeutics promises more than for any other disease of the eye,) amblyopia, blepharospasm and ptosis. Dr. BROWNING, of Australia, has been most successful in treating a case of *albugo* with leucomatous patches in both eyes by galvanism. The patient, a little girl of about fourteen years, had been suffering about twelve months. The *modus operandi* consisted in using a small current of four cells, the negative rheophore, attached to a sponge, being applied over the closed eyelid, the positive placed behind the ear, the continuous current lasting from two to five minutes. This treatment was continued twice a week for about three months.

Heat is often of service. For this purpose small sponges may be employed, wrung out of hot water. VON GRAEFE was accustomed to use hot chamomile fomentations, and to apply them by means of little muslin bags, in which a few chamomile flowers were sewn up prior to being boiled. Each bag, as it was taken from the eye, was returned to the decoction to recover its temperature. Whether water or some medicated decoction is employed, it must be kept hot during the whole period of application, either by a spirit-lamp or some similar contrivance, or by additions of fresh hot liquid from time to time. As a rule, neither heat nor cold should be applied to the eyes continuously for any long time; an hour or a half hour a day will usually be enough.

Leeches are frequently called for to reduce congestion and inflammation. They may be applied to the temples or behind the ears.

Setons in the ears or the nape of the neck are too much neglected by many ophthalmologists. In chronic cases, they often bring about cures when all other means fail.

THE EAR.

ECZEMA OF THE AURICLE.

In cases of children Professor GRUBER has found that both glycerine and cod-liver oil, applied on pledgets of charpie, and bound firmly to the eczematous auricle, are of great value.

Dr. BURNETT recommends the following powders:

641. ℞. Florum zinci, ℥ij.
Aluminis,
Amyl, āā ℥j. M.
For a powder.

642. ℞. Zinci oxydi, ℥j-iv.
Amyl, ℥vij-ix. M.
For a powder.

Either of these may be dusted carefully and thoroughly over the diseased auricle, and the latter should then remain undisturbed as much as possible. If the heat and burning becomes very great, cloths steeped in cold water may be applied.

In the subacute form of auricular eczema, the organ may be treated beneficially by the application of *acetum cantharidis* to the sluggish parts, and then penciling the latter with the following:

643. ℞. Olei cadini, f.℥ij.
Alcoholis, f.℥j. M.

This will often prevent the disease from becoming chronic. Should, in spite of this, however, the disease pass to the chronic stage, the best local treatment is painting the diseased parts with *acetum cantharidis*, solution of *nitrate of silver* (gr. x to f. ℥j), and the application of emollients, the head being kept dry and cool. The following ointment is also useful:

644. ℞. Hydrargyri ammoniati, gr. x-xx.
Adipis, ℥j. M.
To be rubbed in gently and thoroughly.

When the eczematous disease has invaded the auditory canal, and stimulation of the parts is needed, an ointment may be used composed as follows:

645. ℞. Hydrargyri ammonio-chloridi, ℈j.
Unguenti adipis, ℥j. M.
Apply with a camel's-hair pencil to the canal once or twice daily.

OTITIS.

DR. CHARLES H. BURNETT, OF PHILADELPHIA.

In *diffuse inflammation of the external auditory canal*, if seen in the earlier stages, from four to six leeches should be applied around the ear, in front of the tragus and under the auricle, close up behind the lobule. Subsequently warm water may be constantly and gently applied to the canal by irrigation or by instillation. To relieve the pain the following solution of morphia may be prescribed:

646. ℞. Morphiæ sulphatis, gr. viij
Aquæ, f.℥ss. M.
Ten drops, warm, in the ear, as required.

It may be used of this strength even in children without danger of narcotism.

The ear should be cleansed by gently syringing with pure warm water or soap and water.

When the discharge diminishes, but assumes a yellow color and dense consistence, with a tendency to the growth of granulations near the membrana tympani, strong solutions of nitrate of silver (gr. lx–c to f.℥j) should be applied every day or two. At home the patient may use the following:

647. ℞. Zinci sulphatis, gr. v.
Tincturæ opii, ♏xx.
Aquæ destillatæ, f.℥j. M.
Ten drops, warm, four times daily, in the ear.

To disperse the granulations and relieve the excoriated and swollen condition of the meatus, HINTON recommends:

648. ℞. Liquoris plumbi acetatis, ♏x–xxx.
Acidi acetici diluti, ♏iij–x.
Liquoris opii, ♏xx.
Aquam destillatam, ad f.℥j. M.
To apply in the canal.

In the treatment of granulations, nothing is equal to *monochloro-acetic acid*. By appying one drop of this, on a cotton holder, to the granulations every other day, they will rapidly disappear. They may also be brushed with *tincture of opium*.

In *acute catarrhal inflammation of the middle ear*, the general catarrhal symptoms should be relieved by a saline aperient and an active diaphoretic, and locally throrough inflation of the tympanum should be secured by using Politzer's air bag, the Eustachian catheter, or Valsalva's method. (See below, under Otorrhœa.) In little children we may employ, as suggested by Mr. HINTON, a piece of india-rubber tubing, through one end of which the surgeon may blow, while the other end is inserted into a nostril of the child. Should the pain become intense, leeches may be applied directly under the auricle. Anodynes may be given to allay pain. Where the fauces and Eustachian tube are inflamed, irrigation of the naso-pharynx with warm water, slightly impregnated with salt or chlorate of potash, is beneficial. Thudichum's nasal douche may be employed.

Chronic catarrhal inflammation of the middle ear may be either moist or dry. Both varieties require constitutional treatment by such drugs as iodide of iron, iodide of potassium and bichloride of mercury. In the large majority of cases, local treatment should be rather to the nares and pharynx than to the tympanum. Irrigation by means of the nasal douche is very important. In cases of swelling and narrowing of the Eustachian tube, inflation is indicated.

DR. EUGENE H. TRIQUET, OF PARIS.

649. ℞. Cupri sulphatis, gr. xv.
Mellis rosæ, f.℥ j.
Aquæ rosæ, f.℥ iij. M.

Inject into the ear in acute catarrh, after the pain has been lessened by leeches and poultices.

650. ℞. Aloës socotrinæ,
Scammonii,
Gambogiæ, āā gr. xv.
Tragacanthæ, q. s. M.

Divide into fifteen pills. Two in the evening, several times a week, in the otitis of drinkers and smokers. Locally, emollient fumigations.

DR. BUCK.

This writer (*Am. Jour. of Otology*, January, 1880,) sums up the relative merits of the different measures most commonly employed

in the treatment of acute, circumscribed inflammation of the external auditory canal, including furnicles, as follows:

"Incisions cannot be depended upon to give permanent relief from pain or to materially shorten the course of the disease. They should therefore be only used after local blood-letting or hot applications have been faithfully tried without success, or where the appearance of the inflamed part indicates the probable formation of a collection of pus. The application of heat is preferable to local blood-letting by leeches. Of the various means at our command for applying heat to the inflamed part, the pleasantest, and at the same time the most effective, is the hot douche. In a few cases, however, the patient finds some form of dry heat more effective in relieving the pain."

OTORRHŒA.

DR. LAURENCE TURNBULL, OF PHILADELPHIA.

The first indication is to remove the secretions. This is accomplished by the syringe and a warm solution of borate or bicarbonate of soda, one drachm to a pint of hot water. When the patient has to care for himself, it is safer to employ CLARK'S ear-douche, which acts by hydrostatic pressure, and is less apt to injure the delicate and sensitive organ.

If the pus is in the middle ear, and the opening in the membrana tympani small, the patient being unable to force the matter out by the *process Valsalva*, (namely, a prolonged inspiration, and then an expiration with the nostrils closed,) even if the operation is frequently repeated, then the physician must employ *Politzer's process*, which consists in this: Take a straight or slightly-curved tube, open at both ends, twelve or fifteen inches in length. This is introduced about half an inch into either of the anterior nares. The nares are then closed air-tight over the tube by gentle pressure with the fingers on both alæ nasi, prior to which the patient takes a small quantity of water in his mouth, which he swallows exactly at the same time that air is blown into the tube, which may be done by the operator having the other end of the tube in his mouth, or an india-rubber bag being attached to the tube, and compressed by the operator or assistant.

If antiseptics are needed to remove the odor, carbolic-acid solution,

gtt. v–x to f. ℥ j, may be employed. Almost all aural surgeons have agreed upon certain astringent substances which are safe and proper to use in this class of chronic cases; and among the number the sulphate of zinc is one of the best, being employed in about the strength of from one to three grains to the ounce of water. Stronger solutions of this salt are resorted to, and are all right and proper if there is no perforation of the membrana tympani; but if there is an opening in this membrane, no matter how small, it is safer, and gives less pain to the sensitive middle ear, to resort to the milder solution, not exceeding three grains to the ounce of water. The alum salts are apt to cause abscesses. Nitrate of silver, in this class of cases, is very objectionable, especially in very strong caustic solutions, unless immediately neutralized by a solution of common salt.

After the use of the astringent for four or five weeks, it is well to change it, or add a solution of two grains of *sulphate of copper* or *nitrate of lead*. If there are large granulations, the solid nitrate of silver may be applied on a probe charged with it; or a solution of sulphate of zinc, gr. xxx to f. ℥ j. Constitutional treatment is demanded in case of the strumous or other dyscrasia.

M. MENIERE, OF PARIS.

This distinguished otologist says that in all cases of otorrhœa great attention must be paid to the constitution, to correct any dyscrasia that is present. In this lies an essential element of success in all instances. *Cleanliness* is the next point, which must receive the closest care. Nothing is better than pure warm water injected from an ordinary syringe with moderate force. In the early stage, and when the otorrhea is accompanied by sharp pain, the water may be medicated with a little opium; a leech or two may be placed behind the ear; and the whole ear may be covered with a linseed-meal poultice on which a little laudanum has been sprinkled. When the pain remains very intense, hypodermic injections of morphia are the most advisable means.

In cases of long standing, warm injections are always indicated. They may be of water, or weakly medicated as follows:

651. ℞. Aluminis.
Plumbi acetatis.
Zinci sulphatis.
Of either of these, gr. j-iv
Aquæ tepidæ, f. ℥ j. M.

A little piece of wool dipped in a weak solution of carbolic acid may be placed in the orifice of the meatus after each injection. Other lotions much used by M. MENIERE are:

652. R. Zinci sulphatis, gr. xx–xxv.
Glycerinæ, f.℥j.
Aquæ, f.℥ij. M.

And:

653. R. Plumbi acetatis, gr. x–xv.
Aquæ, f.℥j. M.

TINNITUS AURIUM.

In those forms of tinnitus dependent on inaction of muscles, or "paralysis of the intrinsic muscles of the ear," faradism seems to be a really valuable agent. Several cases have been treated in this way at the Central London Throat and Ear Hospital, by means of Stohrer's battery, with very marked good results. The current may be applied either direct to the membrane or over the mastoid process. According to the experience of all practicing at this hospital, the latter method is quite as efficient as the former.

At a recent meeting of the Harveian Society, London, Dr. WAAKES called attention to the value of *hydrobromic acid* in aural cases of the class under consideration; and in the *British Medical Journal* of June 23d, 1876, he has narrated two successful instances of its use. Since then, other practitioners have employed it with equally good results.

Gentle pressure exercised on the external carotids will occasionally relieve this symptom.

The late Mr. HILTON stated (*Questions of Aural Surgery*, page 292,) that he had "had more success with hydrochlorate of ammonia than with any other empirical remedy—especially more than with the bromide of potassium, of the efficacy of which he had seen very little evidence." As regards the empirical action of the hydrochlorate, it is chiefly indicated on account of its "high diffusion power" in those cases in which it is desired to administer "a food to the mucous membranes." (RINGER.)

DR. LAURENCE TURNBULL, OF PHILADELPHIA.

When the tinnitus arises from pressure of cerumen upon the membrani tympani, the treatment is simply to remove the cerumen by injections of tepid water or weak solutions of soda.

Another cause is the growth of stiff hairs within the meatus. By cutting these away with a curved scissors, the affection is relieved.

Tinnitus from adhesive mucus on the posterior surface of the membrana tympani, or in the middle ear, may be removed by the catheter or by a few blasts from Politzer's air bag.

Foreign bodies in the Eustachian tube, causing tinnitus, can generally be removed by reversing the action of the air bag, causing a suction of air from the tube; or the Eustachian forceps may be used.

In pulsating tinnitus, the result of some alteration in the blood vessels, anæmia, or excessive action of the heart, we must try compression of the temporal or carotid, or the exhibition of iron, aconite or digitalis, as indicated by the action of the circulatory system.

For excitement of the brain, causing subjective noises, bromide of potassium is usually efficient.

Tinnitus from nerve exhaustion calls for phosphorus, strychnia, and the galvanic current.

The presence of the aspergillus in the ear is another occasional cause.

RÉSUMÉ OF REMEDIES.

Aconitum. Drs. BAYES and TURNBULL recommend aconite in otitis, and state that it quickly relieves the pain.

Alumen, as a local astringent application, has a variety of uses in aural therapeutics. (F. 641, 651.) Dr. J. J. CHISHOLM considers it the best dessicating powder known. He finds very few aural discharges, however chronic, that withstand its proper application. The method employed in using it is first to thoroughly cleanse the ear, then wipe dry the passage by means of a loose cotton swab made at the end of a match or special applicator; after which puff into the ear powdered alum, *filling the drum cavity with it.* The very first application will often indicate a diminished discharge at the end of twenty-four hours. The ear is then washed out, and the alum powder again applied. This treatment is renewed once a day until the discharge is so reduced that the powder blown into the ear continues dry upon its exposed external surface. If it has crusted in the ear, it may be left for days as a hard mass, giving no pain and causing no annoyance.

Aqua Calcis, on account of its astringent quality, is used as a wash in discharges from the ear. It is of most service when some active inflammation is still present. (RINGER.)

Aqua Pura. In ear-ache, Dr. BUDD, of New York, recommends that water, as hot as the tongue can bear it, be poured into the ear. Warm water is the best of all substances for cleansing the ear.

Argenti Nitras in weak solution is used for injections.

Atropiæ Sulphas, gr. iv to aquæ f.℥j, is an excellent remedy in otitis. A few drops of the above solution instilled into the ear, and some leeches to the mastoid process and in front of the ear, will promptly break up an acute attack. The recumbent position and perfect rest should be enjoined.

Carbolicum Acidum. Dr. PAULSEN in the *Monats-schrift für Ohrenheilkunde*, No. 2, claims to have met with excellent results in the treatment of otorrhœa, uncomplicated by caries or large polypi, by means of a mixture of carbolic acid or olive oil, ten parts of the former to one hundred of the latter. He has found it much more effective than astringents or other methods which he has tried, and the combination of the acid with the oil was much better than the acid with water. His method of application is to cleanse the ear thoroughly by cotton or a probe, avoiding syringing unless it is absolutely necessary, and then, dipping a tampon of cotton in the solution, to apply it to the secreting surface and there leave it till the next day, when the same process should be repeated. In this way he has succeeded in relieving obstinate otorrhœas, even when complicated by small granulations.

Chloral Hydras. Dr. A. LUCAE, in the *Berliner Klinische Wochenschrift*, 1872, recommends that from ten to thirty drops of a mild solution of chloral be introduced into the middle ear by means of the Eustachian catheter and air-douche. A severe but short reaction generally follows. In the best cases an improvement of the hearing is noted after the second application. If no improvement is seen after the twelfth application, we may expect none from the use of this remedy. In ten per cent. of all cases the improvement was marked; in twenty-five per cent., slight; and in sixty-four per cent. no improvement occurred.

Cupri Sulphas is a valued astringent. (F. 649.)

Digitalis is occasionally useful in tinnitus.

Glycerina is an excellent emollient addition to aural injections.

Hydrobromicum Acidum has been successfully employed in tinnitus aurium. (Page 448.)

Iodinium, and its preparations have a wide field in aural diseases. In an article on the subject by Dr. DE LACHARRIERE, (*Annales des Maladies de l'Oreille*, July, 1876,) he states that in otorrhœa, when the discharges have had a certain duration, when the secretion seems to have its origin from the surface of the periosteum, or even in the bony tissue itself, that we should have recourse to iodine or its compounds. The author employs a solution of iodine, of which the following is the formula, and which he uses night and morning as an injection:

654. ℞. Tincturæ iodinii, gtt. xxxv.
Potassii iodidi, gr. iv.
Aquæ, f.℥ ij. M.

Following subacute inflammation of the middle ear, simple engorgement of the ossicles has been observed. Left to itself, the effusion is rarely ab-

sorbed; the ossicles become less mobile, and this fixity shows itself outwardly by a great projection of the handles of the malleus. The hearing becomes more and more obtuse, and the patient suffers from musical buzzings of the most painful nature. This deafness is frequently observed in gouty people. Very often it is found useful to drop into the auditory meatus a few drops of the following solution:

655. ℞. Potassii iodidi, gr. iv.
Aquæ rosæ, f.℥j. M.

These applications have sometimes caused a slight irritation of the auditory meatus, but they have also sufficed to bring about absorption of the morbid deposit and a return to the normal condition. Dr. L. TURNBULL states that the best treatment of incomplete deafness after cerebro-spinal meningitis is by the internal use of the iodide with the bromide of potassium, and the application of mercurial ointment behind the ear.

Iodoformum. Dr. CZARDA recommends iodoform as a remedial agent in those cases of otorrhœa in which the tympanic mucous membrane is thickened, swollen and hyperæmic—a condition which is due to chronic catarrh of the mucous membrane. Trachomatous growths of the mucous membrane, when small, may be treated with iodoform, but when they become large, palliative measures must be adopted, and in obstinate cases it may be necessary to resort to an operation. The iodoform is applied by blowing it into the tympanum. (*Wiener Med. Presse*, No. 5, 1880.) The following is the mode in which Professor ZAUFAL, of Prague, uses the iodoform: After having well cleansed the ears, a moderate quantity of the iodoform in powder was blown through a quill on the tympanum; later on, when the suppuration was diminished, a pellet of cotton coated with the same is introduced into the tympanum, and is left *in situ* three or four days. The cure is effected in from one to four weeks. The peculiar odor of iodoform could be masked by the addition of almond oil or tannin, or a few drops of essence of peppermint.

Plumbi Acetas is a favorite astringent. (F. 648, 651.)

Potassii Permanganas, in weak solution, forms an excellent antiseptic and slightly stimulating wash. Dr. HOWE (*Transactions of the American Otological Society*, Vol. II, Part 3, p. 359,) recommends a solution (from two to eight grains to the ounce of water) in otitis media purulenta chronica. A few drops are to be instilled into the ear twice a day, (after removal of the discharge by syringing with warm water,) and to be allowed to remain in five or ten minutes, if they cause no smarting or burning sensation. If decided inconvenience is produced, the solution is to be washed out sooner.

Salicin. Dr. E. H. JACKSON has found this a valuable agent in otorrhœa. (*Medical and Surgical Reporter*, April, 1876.) After the ear is thoroughly cleansed and a speculum adjusted, blow into it through a quill,

656. ℞. Salicine, gr. ij.
Cal. magnesiæ, gr. iv. M.

and insert a small piece of cotton. Should the discharge be excessively offensive, the cotton can be wet with chlorinated soda, which will tend to

allay the fœtor. This process should be renewed every two or three days, observing well the effect, and varying the proportions of the medicine as demanded. In general, constitutional treatment is unnecessary, unless the otorrhœa depends on some dyscrasia.

Sodii Boras is occasionally used in injection.

Strychnia. A one per cent. solution of nitrate of strychnia has been successfully used in nervous deafness by subcutaneous injection by Dr. R. HYGEN, of Leipzig. He injects it twice weekly into the integument over the mastoid process, using no other remedy.

Tannicum Acidum, in solution or combined with glycerine, is an efficacious agent in otorrhœa.

Tiglii Oleum is used as a counter-irritant in otorrhœa.

Zinci Sulphas is a valuable astringent. (F. 647.)

Local Blood-letting, by leeches to the tragus or wet cups over the mastoid region, is the most efficacious of remedies in acute inflammation of the middle ear.

Medicated Cotton-Wool. This is of great service in chronic purulent inflammation of the middle ear. The cotton is thoroughly washed, dried, and saturated with one of the following solutions: Borax, twenty per cent.; sulph. zinc, two per cent.; sulph. zinc, five per cent.; tannin, five per cent.; salicylic acid, five per cent.; alum, three per cent.; alum, five per cent.; ferri subsul., three per cent. The salicylic acid preparation has been found beneficial in purulent cases where there was an offensive odor. In cases where the polypoid granulations are a feature, one may use the ferri subsulphas. The meatus is syringed and dried, and the medicated wool is rolled loosely upon the end of the carrier, the diameter of the roll being usually a little smaller than that of the meatus, and about two or three centimetres long for adults. It is then gently inserted into the meatus down to the diseased parts.

XIV. NEW GROWTHS.

I. BENIGN GROWTHS.—*Bronchocele or Goitre—Fatty Tumors—Fibroid and Fibro-cystic Growths—Glandular Hypertrophies—Intra-Laryngeal Growths—Polypi—Warts and Corns—Resume of Remedies.*

II. MALIGNANT GROWTHS.—*Cancer—(Internal Treatment: Local Treatment; Escharotics; Epithelioma; Cancer of the Œsophagus; Cancer of the Stomach; Cancer of the Uterus; Resume of Remedies.)*

I. BENIGN GROWTHS.

BRONCHOCELE OR GOITRE.

DR. MORRELL MACKENZIE, OF LONDON.

This eminent surgeon treats cystic goitre as follows: The cyst is first emptied with a trocar at its most dependent point. He then takes:

657. ℞. Tinct. ferri chloridi,
Aquæ, āā f.℥j. M.

Of this, f. 3j–ij is then injected into the cyst and the canula plugged, the iron thus remaining in the cyst. After seventy-two hours the plug is removed and the iron solution withdrawn. The plug is then re-inserted, and poultices of linseed meal are kept constantly applied for a few days, immediately over the cyst. In a few days suppuration is set up, and the plug is permanently removed, the canula, however, being allowed to remain. The duration of treatment is from three weeks to four months, according to the size of the cyst.

In fibro-cystic goitre, the cysts are treated in the manner above described, and the fibrous structure afterwards attacked with subcutaneous injections of iodine.

Dr. M. lays down the rules that any cystic goitre as large as a hen's egg calls for active treatment; that injections of iodine in this form are dangerous, because often followed by sloughing; and that extirpation with the knife is also dangerous, because of the hemorrhage.

ARTHUR TREHERNE NORTON, F. R. C. S., OF LONDON.*

If the goitre arises from local causes, as the drinking-water, etc., the patient must change his residence or treatment will be unavailing. If anæmia is present, iron is demanded. In cases where the growth is not of long duration, treatment by absorbents, externally and internally, is generally successful. Mr. NORTON usually prescribes:

658. ℞. Potassii iodidi,
Ferri ammonio-citratis, āā gr. v.
Infusi quassiæ, f.℥j. M.
This amount at a dose.

For a lotion he prefers one containing *iodine* in proportion not sufficient to irritate the skin:

659. ℞. Tinct. iodinii, ℥ss-j.
Glycerinæ, ℥ij.
Aquæ, ad ℥j. M.

This lotion has the advantage of not evaporating, while the iodine, being very small in quantity, is not irritating to the skin, and at the same time is readily absorbed into the part, because evaporation does not take place. It should be applied on lint, which should always be kept moist with the lotion; over the lint may be sewn a piece of oiled silk, and over this again a piece of velvet, which altogether hides the application.

The operative procedures which may be resorted to are: puncturing cysts, setons, injections, ligating the thyroid vessels, and extirpation. Mr. NORTON condemns the last two. Setons promote absorption, but he has never seen them bring about a complete cure. There is no danger in evacuating large and fluctuating cysts. There is but little danger in injections, though he had seen one case of death from their use.

PROF. A. LÜCKE.

This author recommends injecting into the parenchyma of the tumor an alcoholic solution of *iodine:*

660. ℞. Iodinii, ℥j.
Alcoholis, f.℥x. M.
Ten to fifteen drops of this to be injected every ten days.

*Affections of the Throat and Larnyx. London, 1875.

The puncture should be firmly pressed with the finger after the needle is withdrawn, and the wound closed with adhesive plaster.

PROF. S. D. GROSS, OF PHILADELPHIA.

Wash the neck thoroughly every night with warm water and soap, and rub well in:

661. ℞. Unguenti hydrargyri biniodidi, ʒj.
Cerati simplicis, ʒvj. M.

The patient should also take, internally, liquor iodinii compositus, gtt. viij, in sweetened water, thrice daily.

PROF. J. M. DA COSTA, PHILADELPHIA.

662. ℞. Cadmii iodidi, ʒj.
Cerati simplicis, ʒj. M.

Apply, by thorough friction, every other day.

DR. LUTON, OF RHEIMS, FRANCE.

663. ℞. Acidi iodidi, ʒj.
Aquæ destillatæ, f.ʒss. M.

Inject eight to ten drops in the substance of the tumor, from time to time.

DR. FRIEDERICH OESTERLEN, TÜBINGEN.

664. ℞. Brominii, gtt. xij-xx.
Adipis, ʒj.
Olei limonis, gtt. x. M.

Rub thoroughly over the swelling, from time to time.

PROF. JAMES SYME, F. R. S. E.

This author teaches that, with the exception of those rare cases where some energetic interference is peremptorily required, the best treatment of bronchocele is to *blister* the surface. Most surgeons dress the blistered spots with ointments containing iodine, or iodine combined with mercury. For his part, Professor SYME regards the blister itself as productive of nearly if not all the benefit, and therefore uses them without any other means or treatment. The headache which occasionally proves a distressing attendant of the disease, is sometimes much alleviated by the application of a few leeches to the temple from time to time.

Should the case cease to improve, or be obstinate from the commencement, the patient should be dissuaded from subjecting himself

to more severe experiments, unless his existence should be threatened by the swelling.

The plan of passing a *seton* through the tumor in order to excite suppuration and consequent diminution of bulk, is easily executed, and seldom leads to any serious consequences. Nevertheless, some fatal results have been reported, and the good effects of the practice have been but of partial extent.

In simple hypertrophy of the thyroid, injections of *ergotin* are generally successful. The procedure is by hypodermic injections of from six to ten minims of a solution containing ninety-six grains of ergotina to the ounce of distilled water. The injection is repeated two or three times a week for the space of from four to six months, when the gland becomes thoroughly hardened. The gland begins to shrivel with the stoppage of the injections, and very soon returns to its normal size. Ergotina is of no value in bronchocele, but only in cases of simple enlargement of the thyroid gland. The injection is attended with very little pain.

Iodoform has been tried by various Swiss physicians, but, on the whole, without satisfactory results. (See *Correspondenzblatt*, Jan., 1880.)

The dyspnœa with which goitrous patients are often affected can be greatly reduced by the following:

665. R. Pulv. stramonii fol., ℥ij.
Potassii nitratis, ʒj.
Opii pulveris, ℈j. M.
A teaspoonful to be burned in the room when required. (A. Shannon.)

FATTY TUMORS.

As a local injection into the substance of adipose tumors, *alcohol* has been used by some surgeons. A certain amount of the latter should be made to enter the fatty growth through several aperatures, allowing some days to intervene between each injection. The tumor then softens and fluctuates; and the operator should at that period incise the growth and empty it, by means of gentle pressure, of the oily liquid which has been formed. Febrile reaction is generally very slight. It is hardly worth while, in some fatty tumors, to subject the

patient to numerous punctures and injections, which may be more or less painful, and crown all by an incision and kneading of the tumor.

The French surgeons, MM. DEBREUIL, CHASSAGNAC and others, prefer caustics to the knife in fatty tumors. The reasons they give are that the suppuration insures complete obliteration of the cyst; that it does not confine the patients to bed; and that they are less exposed to erysipelas, purulent infection and the like, than when operated on with the knife. They usually employ the Vienna paste.

As it is known that the fat of these tumors is characterized by the crystallization and separation of its elements, especially its margarine, it has been suggested by Mr. JOHN GAY, F. R. C. S., (*Lancet*, June, 1873,) that subjecting the tumor to a high temperature would liquefy the fat and promote its absorption. He accordingly ordered immersion in hot water, 120° to 138° Fah., repeated as often as is safe or convenient, and by this plan has succeeded in removing a number of such tumors.

FIBROID AND FIBROCYSTIC GROWTHS.

Parenchymatous Injection.—In fibrous tumors, resolution may be brought about by the parenchymatous injection of various substances. Chief among these is *ergot*. The following formula is recommended:

666. ℞. Extracti ergotæ aquosæ (SQUIBB), gr. 200.
Aquæ, ♏ 250.
Stir, filter and add
Aquam, ad ♏ 300.
Each minim represents six grains of powdered ergot. For an injection, ♏ x-xx, daily or every two days.

Iodine injections have been used largely in Germany, with varying success. In this country they have, on the whole, been disappointing.

Internal Medication.—Here again *ergot* is much praised. It should be given in large doses, and not so very frequently. The addition of *belladonna* is believed by some to increase its good effect:

667. ℞. Extracti fluidi ergotæ, f.℥j.
Tincturæ belladonnæ, gtt. xx. M.
This amount once or twice in the twenty-four hours.

Or,

668. ℞. Extracti ergotæ solidi (Squibb), gr. v.
This amount in a gelatine capsule twice a day. It equals gr. xx of crude ergot.

The successful exhibition of *ammoniæ murias* in large doses, ʒj–iij, in a case of large fibrous tumor in the abdomen, is reported by Dr. F. W. Hatch, in the *Pacific Medical and Surgical Journal*, 1875.

It should be remembered that simply passing a well-waxed thread through many tumors, (hygromas, ganglia, cysts, lipomata, &c.,) and fastening the ends together and leaving it there, will cause their disappearance.

GLANDULAR HYPERTOPHIES.

DR. MORRELL MACKENZIE, LONDON.

In glandular swellings of indolent character, this surgeon has found the hypodermic treatment with *acetic acid* the most useful to bring about resolution. The dilute acid is used, gtt. v–xx for one injection, gtt. vij–viij being an average dose. The injection should not be made more than once a week. The fluid should be injected well into the middle of the gland. If suppuration take place, the fluid should be drawn off with a hypodermic syringe or aspirator. The average duration of treatment by resolution is three months.

For treatment by destruction and suppuration, a solution of *nitrate of silver* answers the best. The solution should be of the strength of one drachm to the ounce, and not more than three to five drops to be used. Considerable interstitial destruction is generally produced after three or four injections, sometimes after a single injection. When pus forms, it should be drawn off as already directed. Treatment by destruction, if successful, is rather more rapid than that by resolution, but induration of the outer portion the gland sometimes follows the treatment, and interferes with its success. The treatment by pepsine and dilute hydrochloric acid he found to be rapid, but was twice followed by superficial sloughs of the skin, and for that reason he abandoned it. (*Medical Times and Gazette*, May, 1875.)

MR. CAMERON, DEPUTY INSPECTOR-GENERAL, INDIA.

This surgeon urges the treatment of chronic glandular swellings by repeated and deep *punctures* with a common lancet or small steel stiletto. The instrument should be held at right angles to the swelling and pushed down to the bottom. He has never seen any inflammatory or other bad symptoms produced by this operation, and he has often practiced it with brilliant success. He believes it would do well in fibrous tumors also. (*Lancet*, August, 1874.)

MR. FURNEAUX JORDAN, ENGLAND.

This surgeon employs *counter-irritation* to remove enlarged glands. The best locality for the counter-irritant is around or adjacent to the enlargement. Blisters or iodine may be employed. In enlarged cervical glands, a large patch of iodine irritation at the back of the neck, which may be prolonged below the glands, will, he states, certainly prove successful in a short time.

MR. S. MESSENGER BRADLEY, F. R. C. S., ENGLAND.

Injection with the *tincture of iodine* is largely employed by this surgeon. He has even succeeded in producing absorption of some encapsulated tumors situated on the salivary glands by this means. As a rule, two or three injections, gtt. v–xv of the simple tincture, are sufficient to effect a cure. He lays down the following rules as to its application:

1. *Cases to be treated by Iodine Injections.*—True hypertrophies of the cervical glands without scrofula; strumous hypertrophies of the cervical glands before they have broken down; hard, non-infectious lymphomata; all encapsulated tumors, as a tentative operation.

2. *Cases to be treated by Incision.*—Lymphatic tumors that have broken down into pus.

3. *Cases for Extirpation with the Knife.*—Strumous glands which form tumors riddled with soft patches, and resting on a base of supcellular tissue, with a large area of blue skin; encapsulated tumors which have resisted the treatment by injection.

SIR. J. Y. SIMPSON, EDINBURGH.

669. ℞. Cupri sulphatis exsiccatæ pulveris, ʒj.
Glycerinæ, f ʒj. M.

The caustic mixture thus obtained acts only on the skin deprived of its epidermis. The eschar is white, and ordinarily separates the fifth or sixth day. The advantages attributed to this caustic in the treatment of tumors are the following: 1. Energetic escharotic effect. 2. Rapidity of action. 3. Easy management. 4. No tendency to run. 5. Freedom from danger.

SIR HENRY THOMPSON.

670. ℞. Zinci sulphatis exsiccatæ, ʒ iv.
Acidi sulphurici, q. s. M.

The sulphate of zinc, previously dried, in order to deprive it of its water of crystallization, is mixed with a strong sulphuric acid to the consistence of a jelly, which is then applied by means of a glass rod or spatula. The parts surrounding the tumor to be destroyed are to be covered with a firm pomade, to limit the action of the caustic.

PROF. DEMARQUAY, PARIS.

671. ℞. Unguent. hydrargyri, ʒ iij.
Camphoræ, ℈ ij.
Cereæ flavæ, ʒ iss.
Olei olivæ, f. ʒ iss.

Dissolve the wax and oil by heat, and when nearly cold add the camphor in powder and the mercurial ointment, and make a homogeneous mixture. A useful absorbent ointment for indolent tumors.

M. T. ANGER, PARIS.

In *mucous cysts*, as of the vulva, etc., this writer has obtained no satisfactory results from iodine, but reports favorably of *chloride of zinc*.

672. ℞. Aquæ destillatæ, gt. x.
Zinci chloridi, ʒ j. M.

Twenty drops injected into the tumor.

A single injection is ordinarily sufficient to bring about a decrease of size, which, however, does not begin for four or five days.

PROF. MUSSEY, M. D., CINCINNATI.

673. ℞. Plumbi nitratis, ʒ ij.
Aquæ rosarum, ʒ iv. M.

Apply thee times a day to *warts* and *scabby* or *scaly tumors*.

The dry powder of *nitrate of lead* can be used with great advantage in onychia maligna, etc.

INTRA-LARYNGEAL GROWTHS.

MR. LENNOX BROWNE, F. R. C. S. E.

From his position as surgeon to the Central London Throat Hospital, this writer speaks from a wide experience in this class of new formations. Many of them, he believes, never require treatment, and if left to themselves, do not acquire a serious aspect. A large proportion will, if untreated, "frequently disappear spontaneously, being subject, as they are, to slow atrophy and resorption." (VIRCHOW.)

Many of them will disappear or be reduced by appropriate local and constitutional medical treatment, especially when of recent occurrence. Except in the very rare and doubtful instances of a congenital growth, all these new formations originate as a direct consequence of hyperæmia, or, as VIRCHOW puts it, "as the expression of an inflammatory irritation, which affects the whole surface, though it does not give rise to the same results in all parts." When growths are present, there is not unfrequently considerable general congestion of laryngeal mucous membrane. It is, therefore, most important that every practitioner should, in every case of hoarseness, examine the larynx of his patient at the very earliest date. Let him treat the hyperæmia when it first occurs, and he will also see a new formation, should one arise, at its very commencement, or at least on the first approach of symptoms of its presence. It cannot be too strongly urged that the cause of a hoarseness is not to be discovered by pressing down the tongue with a paper-knife and looking into the back of the mouth, and that a localized inflammation, ulceration or irregular formation within the larynx is not to be healed by swabbing the pharynx with a brush charged with a solution of nitrate of silver, or by pushing a probang similarly loaded down behind the tongue unguided by the mirror, in the vain belief that it is going into the larynx, when, in the one case out of ten in which it certainly reaches no further than the superior surface of the epiglottis, it as certainly finds its way down the gullet.

In addition to the use of general and topical remedial measures to reduce the hyperæmia, the practitioner should remove any cause likely to keep up irritation of the larynx, such as relaxed uvula, unsuitable occupation or exposure to sudden changes of temperature; and rest of the voice should in all cases of hoarseness be strictly enjoined. The

moment the least irregularity of the cord is visible, the practitioner should at once make mineral astringent applications to the spot daily, until there is diminution of the growth or ulcer, and then on alternate days, or less frequently, as may be required.

POLYPI.

Gelatinoid nasal polypi can frequently be removed by astringents, and thus spare the patient the shock of evulsion; or they may often be dispelled by injecting a few drops of solution of zinc chloride, renewed as often as the slough detaches. Mr. REGINALD HARRISON (*British Medical Journal*, Nov., 1879,) finds that if the ordinary mucous polypus be punctured, the fluid drains away and causes the growth to shrivel, a process much expedited by subsequently injecting carbolic acid and glycerine into the nostrils. Mr. A. G. MILLER (*Id.*, Dec.,) had previously applied rectified spirit in the form of spray to polypi with success, and thinks a preliminary puncture would greatly assist the action of the remedy.

Dr. REEDER proposed, in the *Chicago Medical Journal*, 1859, the local use of the *tincture of the chloride of iron*, and it has been successfully employed by many physicians. The formula is:

674. R. Tinct. ferri chloridi,
Aquæ, partes equales. M.

About two drachms of this mixture is injected into the nostril, the head being held back so as to retain the fluid in contact with the polyp for a few seconds. The irritation of the nares caused by the dilute tincture is trifling in severity and of short duration. The application should be repeated daily for three or four days, which is usually sufficient to effect a cure.

Mr. THOMAS BRYANT, of London, has spoken highly (in the *Lancet*, Feb., 1867,) of the success he has attained by insufflating *tannin* in powder, by means of a quill inserted into the nostril. He employed about ten grains at a time, and repeated it daily for several months.

It has been recommended by Dr. SCHÖNFELD to supplement the

local treatment by the internal administration of *iodide of lead*, gr. ij–iij twice or thrice daily.

DR. MORRELL MACKENZIE.

675. ℞.	Ferri perchloridi,	ʒj.
	Aquæ,	q. s. to make a thick paste.

This author has found the best results from the use of this paste in getting rid of polypi. When they are small and easily reached it is generally successful.

The use of the *saffronized tincture of opium* was introduced by Dr. PRIMUS, of Babenhausen, as a local application. It is officinal in the German Pharmacopœia.

TINCTURA OPII CROCATA.

676. ℞.	Opium,	16 parts.
	Saffron,	6 "
	Cloves,	1 "
	Cassia bark,	1 "
	Sherry wine,	152 "

Prepare by digestion.

If the growth be painted several times a day with this liquid, in about a week or ten days the polypus, under favorable circumstances, becomes shriveled up, and falls from its attachments.

Bichromate of potash and nitrate of silver have also been tried frequently with more or less success.

Galvanic Cautery.—Dr. THUDICHUM has removed polypi by this means, and although the proceeding is only practicable in a limited number of cases, and can never come into general use, the invention possesses advantages, and must occasionally prove extremely valuable. The polypus is encircled by a wire loop, which is made red-hot by being connected with a galvanic battery, and the substance of the growth can then be burnt straight through. The operation is attended with little pain, and there is no risk of hemorrhage, but as the wire can rarely be adjusted to the pedicle of the tumor, and as no traction is made which would be likely to draw away the polypus by its roots, the growth has generally to be removed in slices.

In the use of *bichromate of potash*, saturated aqueous solution of the salt is applied by means of a small brush to the parts of the polypus

within reach, care being taken to avoid the neighboring tissues, and this is repeated several times. It does not generally produce pain. At the end of three or four days, inflammation is excited, and a watery, acrid fluid flows from the part. This lasts about two days, when it will be found that the polypus has partly or wholly disappeared. The application should be suspended as soon as inflammation is excited, and renewed after it has disappeared, should all the polypus not have been removed.

Polypus of the Ear.—Both nasal and aural polypi are said to be benefited by the administration of *teucrium marum*, or cat thyme. Dr. JOHN BARTLETT (*Chicago Medical Examiner*, August, 1872,) employs it as follows:

677. ℞. Teucrii mar. folior., ℥j.
Alcohol, f℥x. M.
Macerate fourteen days.

Apply locally to the polypus, and also take a few minims internally daily.

This writer reports several cases of aural polypi, one being himself, who have been cured by this remedy.

Dr. W. W. SEELY, of Cincinnati, Ohio, (*Transactions Ohio State Medical Society*, 1872,) states that in aural polypus, where evulsion is not employed, he adopts this plan: After thoroughly drying the ear, cleansed of all discharge, he applies, on the point of a small probe, a minute crystal of *chromic acid*, seldom larger than an ordinary pin's head. If the polypus is large, and he finds he only has made a small impression, he applies it again the next day, and then waits three or four days, when usually a white mass of charred tissue will drop off. Another application then takes place. Great care is necessary in using the chromic acid, but with such care it is free from danger.

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WARTS AND CORNS.

In treating a wart, *chromic acid* is a useful agent. In many instances it will blacken and kill the growth, the tumor sloughing away in the course of five or six days, leaving the resulting ulcer a perfectly simple one.

But this cauterant is not to be applied to the vascular kind of wart; on the contrary, if irritable, as it often is when brought to the notice of the practitioner, it should be soothed by gentle applications, after which it should be thoroughly removed by the knife or ligature. Especially when situated on the face, a wart cannot be too judiciously or carefully treated.

Professor SYME preferred to soften a corn by touching it again and again with acetic acid until the whole is scraped out, and then to apply nitrate of silver to the exposed surface of the cutis, so as to destroy its morbid secretory tendency.

For *soft corns*, he recommended astringent applications, such as that formed by mixing together equal parts of alum and the whites of eggs, which will often afford great relief.

RÉSUMÉ OF REMEDIES.

FOR BENIGN NEW GROWTHS.

Aceticum Acidum. Glacial acetic acid is very effectual in removing warty growths.

Alcohol, by hypodermic injection, has been employed in fatty tumors.

Ammoniacum. The *emplastrum ammoniaci* and the *emplastrum ammoniaci cum hydrargyro* are used as local stimulants and discutients to promote the resolution of *enlarged glands* and other indolent tumors.

Ammonii Murias, moistened and rubbed over warts, will usually cause them to disappear. It has been given internally to hasten absorption in other benign growths.

Arsenicum. Warts painted with Fowler's solution will generally vanish in a short time.

Argenti Nitras. In the *Boston Medical and Surgical Journal*, Jan. 6th, 1876, Dr. BIGELOW records two cases of formidable *erectile tumors* obliterated by the injection of a few drops of solution of nitrate of silver dissolved in water, the proportion being equal parts by weight. Parenchymatous injections of solution of nitrate of silver WILDE found to be especially serviceable in tumors of soft consistence, the strength of the solution being one grain to one ounce, and a considerable quantity being injected.

Belladonna. The growth of new formations is sometimes checked by the application of belladonna plasters or the hypodermic use of atropia.

Brominium is a favorite escharotic agent in the treatment of a variety of new growths. (F. 664.) It is energetic and very painful; moreover, its fumes, if inhaled, are apt to produce a disagreeable irritation of the Schneiderian membrane.

Cadmii Iodidum is used as an inunction in goitre by Dr. DA COSTA. (F. 662.)

Calcii Chloridum is valuable in strumous enlargements.

Carbolicum Acidum has been used as a parenchymatous injection in indolent tumors. A two per cent. solution is sufficiently strong. Undiluted, it may be applied with success to warts and similar cutaneous growths.

Chromicum Acidum, a solution of gr. c to aquæ f.℥j, may be applied with a glass rod to cutaneous growths, such as small polypi, warts, etc., just enough to saturate the growth, any superfluous acid to be removed, and the part dressed with dry lint.

Conium, both internally and externally, has been used with benefit in enlarged glands and indolent tumors.

Ergota. Both in uterine fibrous and in vascular tumors ergot has been largely and successfully employed. Dr. WM. A. HAMMOND relates (*Archives of Clin. Surg.*, Oct., 1876,) three cases of the latter. He injected from half a drachm to two drachms fld. extract. ergot at a time, at intervals of ten days. In none of these cases was there at any time the least evidence of inflammatory action from the injections; he therefore attributes the successful results entirely to the action of the ergot on the organic fibres of the vessels.

Ferrum. The tincture of the chloride is used by Dr. MACKENZIE in goitre (F. 657); also in polypi (F. 674.) A drop of the liquor ferri persulphatis on a wart will often disperse it.

Iodinium is exceedingly valuable in goitre, etc. (See F. 660.) Applied as tincture or ointment, it is one of the best resolvents known.

Nitricum Acidum. A drachm or two of nitric acid to a pint of water may be used as a wash to small venereal warts.

Plumbi Iodidi. Dr. SCHÖNFELDT prefers iodide of lead to other metallic iodides, on the ground that in small doses its action is not irritant. It does not disturb the organism, or produce salivation, like mercurial preparations. It may be given internally in doses of from two to three grains. From half a drachm to a drachm rubbed up with an ounce of lard forms a good ointment, and the addition of glycerine facilitates its absorption. In cases of lupus, syphilitic growths, nasal polypus, and in cases of indurations, exudations and tumors he has employed the iodide of lead with success.

Plumbi Nitras is an extremely valuable and too little used agent in dispersing new formations. (F. 673.)

Potassii Bromidum. An efficient cauterant in polypoid growths is the following:

678. ℞. Potassii bromidi,
Acidi tannici, āā gr. x. M.

Reduce to a mass by careful levigation.

The effect is prompt, but painful.

Potassii Iodidum, internally, excites the secretory functions and aids in the resolution of various forms of growths.

Salicylicum Acidum. Dr. GEZOW recommends the following as reliable and painless: Dissolve 30 grammes of salicylic acid and 5 grammes of extract of cannabis indica in 240 grammes of collodion. The solution is applied with a camel's-hair pencil. (*Pharm. Ztschr. f. Russl.*, 1879.)

Electrolysis. The employment of electricity in the removal of new formations is one of the most important achievements of modern surgery. It has been used with brilliant success in erectile and fatty tumors, polypi and fibroids, and with asserted advantage in goitres and ovarian tumors. For the particular methods and apparatus, special works on the subject must be consulted.

Galvanism. The use of galvanism as a surgical adjuvant has recently furnished important results in the treatment of vascular and erectile tumors, and some recent experiments encourage the hope that the necessity for that formidable operation, ovariotomy, may in some instances be superseded by this important agent.

Pressure. In many cases of benign tumors, judiciously applied, firm pressure is a most valuable auxiliary.

Puncture is highly commended by Mr. CAMERON. (Page 459.)

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II. MALIGNANT GROWTHS.

CANCER.

In malignant growths the usual rule with most surgeons is to regard the knife as the only remedy worth serious attention; consequently, in systematic treatises, very little is said about local curative applications or internal remedies, and what is said is often in condemnation of them as useless, if not pernicious.

But there are unquestionably several common forms of semi-malignant new formation, capable of destroying life if allowed to progress, but which are curable by proper remedial measures, other than the knife. It is upon these that the quack "cancer doctor" builds his fame; and it is owing to the indifference of surgical teachers to their medical treatment that he gets the chance to do so.

Then there are cases of undoubtedly true malignant tumors which, under the use of caustics and internal medication, have disappeared, never to return. Indeed, it may be laid down as almost a positive result of surgical experience, that a cancer extirpated by the knife

returns sooner than one removed by caustics. The suppuration attendant upon the latter seems to remove the remaining cancer cells, while incision leaves them to set up anew their destructive proliferation.

There are also cases where surgical interference is out of place. In some localities it is next to impossible; and where there are any distinct signs of a cancerous diathesis it is certainly vain to resort to the knife.

Then the pain of cancer is a most distressing and prominent symptom, demanding the most active measures to relieve it.

All these considerations should give to the therapeusis of malignant growths a more prominent position than has yet been awarded it.

The therapeutic treatment of cancer has been in three directions: by internal medication, by local external applications, and by injections into the substance of the growth.

Of internal remedies, *conium*, lauded by STÖRCK, of Vienna, still retains the first rank, in spite of theoretical objections to its efficacy. The best preparation is thought by some to be the freshly-prepared *succus conii*. (For formulæ see below.)

Condurango, which has fallen wholly into disfavor in this country, has recently received strong testimony in its support, in cancer of the stomach, from various German physicians.

The *phytolacca decandra* has been praised by some American physicians for its alleged power to prevent the development of cancer. Not only is the fluid extract given internally, but the inspissated juice of the leaves is applied in the form of a plaster at the same time, either alone or combined with chloride of zinc and opium.

Sir BENJAMIN BRODIE used to give his cancerous patients *liq. potassæ*, f. ʒj, *thrice daily*. Sir JAMES PAGET, in his "Clinical Lectures," says that he also has followed this treatment, often without effect, "but frequently it has given relief from the burning, aching and bursting pains which have been connected with the cancer." Sir JAMES considers it indicated in the gouty diathesis, and believes that Missisquoi water sometimes does good in a similar manner.

Sir ASTLEY COOPER was wont to attach importance to the exhibition of *ammonia*, especially in uterine cancer. His favorite prescription was:

679. ℞. Sodii carbonatis, gr. xxx.
Ammonii carbonatis, gr. v.
Tincturæ calumbæ, f. ʒ j.
Infusi gentianæ compositæ, f. ʒ iss. M.
This amount to be taken thrice daily.

Dr. WASHINGTON L. ATLEE, of Philadelphia, attaches value to the prolonged and even constant use of *arsenic*. After excision of the cancerous growth, this drug would seem to have a retarding influence on its re-appearance.

In *cancer of the stomach*, Dr. JAMES T. WHITTAKER, of Cincinnati, has reported apparently successful caess from the administration of *bi-sulphide of carbon*, gtt. ij–iv, in oil of sweet almonds, three times daily; but the improvement he noted may have been owing to the anæsthetic effect of the remedy.

For injections into the substance of the growth, *dilute acetic acid* has been used with unquestioned success in epithelial cancer. Pure *carbolic acid*, injected underneath the cancerous sore, is said by Dr. BARTHOLOW to limit the extension and retard the growth of the disease.

Dr. HASSE, of Berlin, injects *pure alcohol*, to which one per cent. of ether has been added; this he throws, not into the growth itself, but around its edges, thus obliterating the lymphatics. The injections are repeated once every week or every other week.

Dr. WYNN WILLIAMS, of the Samaritan Hospital, London, employs *bromine*, one part to three of pure alcohol, of which gtt. v–x are injected into the tissues by means of a long syringe with a platinum nozzle. The solution develops heat, and should be prepared some time before used. With it he claims striking success in *uterine epithelial cancer*. Dr. BENJAMIN RHETT, of South Carolina, has also used with success (*Charleston Medical Journal and Review*, Oct., 1874,) the following:

680. ℞. Brominii, gtt. xij.
Alcoholis, f. ʒ j. M.
Inject from four to ten drops into the growth, and touch the surface lightly with it.

DR. JOHN HUGHES BENNETT, LONDON.*

This author, in speaking of the rational treatment of cancer, states that its object should be retardation, and, if possible, resolution. To accomplish these, four means deserve consideration:

* *Cancer and Cancerous Diseases.* London, pp. 237, *seq.*

1. *Cold.*—The external application of cold is one of the most powerful means we possess for retarding cancerous growth. In cancers of the breast it may be applied by a caoutchouc bag filled with ice and suspended round the neck.

2. *Dryness.*—As moisture is essential to cell growth, if the part could be deprived of it, the proliferation must cease. This has been sought for by tying the arteries leading to the affected tissues. MAGENDIE and JOBERT reported several successful cases, where disappearance of the tumor followed, even in cases diagnosed as true cancer. The supply of blood, however, furnished by the anastomotic arteries has prevented the effective application of these measures. While external dryness can produce little effect, wet dressing and lotions should be avoided as hastening the development of the disease.

3. *Pressure*, applied externally to tumors believed to be cancerous, has certainly, in a number of instances, been successful in retarding, even in altogether removing them. RECAMIER and others claim quite a number of cures by this method. In order to secure its proper application, an apparatus has been invented by Dr. NEIL ARNOTT. It consists of a spring, an air cushion supported by a flat resisting frame or shield, a pad and two belts. The pressure can be graduated as desired. It gives great relief from pain, and is useful in ulcerated cases in restraining hemorrhage. In some instances it has brought about complete resolution.

4. *Locally.*—It has been observed that in some districts cancer is more frequent and runs its course with greater rapidity than in others. Observations of this kind may be turned to the profit of those who are able to seek change of climate.

PROF. ESMARCH, OF KIEL.

This very eminent surgeon read an important paper on the medical treatment of cancer in the Sixth Congress of the Society of German Surgeons (1877.) He expressed his opinion that the scrofulous and syphilitic dyscrasiæ predispose to malignant growths, and this furnishes a therapeutic hint. As regards the treatment of cancer, it is well known that many malignant growths are capable of cure by early and sufficient extirpation; but in very many cases the patients come too late to allow an energetic radical cure to be carried out. Dangerous tumors are often treated by insufficient means, and allowed to become malignant; and then the patients come to the surgeon, who is obliged,

to his regret, to perform a difficult operation. What is to be done in cases no longer fit for operation? To tell the patients that nothing more can be done in the way of operation is to pronounce their death-warrant; but there ought to be a final remedy to be used in certain cases. LANGENBECK, of Göttingen, had under his care a woman with cancer, for whom he ordered arsenic. The woman, believing she could not recover, took the arsenic in large quantities, for the purpose of suicide; the result, however, was the cure of the disease. Cancer is essentially an epithelial growth; and the therapeutic action of *arsenic* on skin-diseases indicates that it must have a special influence on the epithelial cells. Arsenic is also given to horses to make their skins smooth. Hence there is a reason for using arsenic in cancer; but it must be given in large doses to produce any result—even until symptoms of poisoning are produced. In this way Dr. ESMARCH has produced astonishing results in some cases of cancer. One woman who had a cancer of the lower jaw, too far advanced for operation, was completely healed by the use of arsenic. Modern experience of the action of arsenic in other maladies, encourages a trial of its action in cancer.

The reputation of arsenic in this disease is of old date; but Dr. ESMARCH has been led to employ it energetically in hopeless cases, and with surprising results. He showed the photograph of a woman who as a child was scrofulous. She had scrofulous glands in the neck, which, during her pregnancy, developed into a lupous sarcoma. Extirpation of the whole disease by the knife was impossible; Dr. ESMARCH therefore cut away the tissue of the face, and laid charpie soaked in chloride of iron on the remaining diseased portions; he then applied a powder of morphia and arsenic, with some calomel and sugar. A thick, leathery eschar was formed, after the falling of which, cicatrization soon took place. Another woman came into his clinic with cancer of the breast, in which adhesion to the ribs had taken place. Dr. ESMARCH prescribed arsenic internally, and, for external application, the powder above mentioned, to be applied daily; this she must have at last have done by teaspoonfuls. In the next session she returned; all traces of the cancer had apparently disappeared, and she said that she had but slight pain.

Besides its destructive action on growths, arsenic is also an antiseptic. Dr. ESMARCH has also obtained some remarkable results in his practice from Canquoin's chloride of zinc paste (Index) and from

electrolysis. In a case of small-celled sarcoma of the thigh, as large as a man's fist, *electrolysis* by a weak current, applied six hours daily, almost completely removed it; but the man would not wait. A year later he returned, without a trace of the tumor. There was one class of malignant diseases in which Dr. ESMARCH had obtained some remarkable results from the use of the iodide of potassium. These are *sarcomatous* tumors. Many of these may be the product of old and concealed forms of syphilis. Psoriasis of the tongue and rodent ulcer are also, at times, syphilitic products, and are greatly benefited by iodide of potash internally, and iodine ointment.

DR. A. WINEWARTER, OF GERMANY.

Certain malignant glandular degenerations have been successfully treated by this surgeon with *arsenic*. He states, in the *Medicinische Jahrbücher*, 1877, the following conclusions:

I. The treatment of both malignant lymphomata and leukæmia, by means of arsenic, is efficacious, since it induces a resorption of the hyperplastic glandular tissue.

II. Arsenic owes its favorable influence to its inherent power of inducing a process of decomposition in albuminous tissues, and especially glandular tumors, which makes resorption possible.

III. Moreover, the local effect of injection and the arsenical fever contribute to the diminution of the size of the tumors. Cures accomplished by arsenic may last for a year, and the recurring tumors are as susceptible to treatment as the primary. In malignant lymphomata the treatment by means of arsenic is unquestionably more efficacious than operation. Operative measures are to be accompanied by internal treatment in every case.

DR. MARSDEN, LONDON CANCER HOSPITAL.

This gentleman, after an experience of over six thousand cases of this disease, considers *arsenic* as superior to any other agent in cancer. He believes that, with early treatment, nine out of ten cases may be cured. He recommends it in every form of cancer, except the cystic or colloid varieties—provided that the disease does not exceed four inches square in size—when removal by the knife appears to be the only remedy. Arsenic may be used in this way for cancers in every situation except the interior of the mouth or nose, localities where

the nature of the remedy makes it dangerous. The formula used at the cancer hospital is the following:

689. ℞. Arsenious acid, ℥ij.
Mucilage of gum acacia, ℥j. M.

Mix into a paste too thick to run. This is to be spread over the entire surface of the cancer, provided this does not exceed one square inch in size; a bit of dry lint is then placed over the sore, in order to absorb any excess of paste. In the course of an hour the lint becomes dry and hard, and adheres firmly to the parts.

In the course of twenty-four hours some inflammatory action is visible in the tissues immediately adjacent to the cancer. There is often also some pain, but this is not usually severe, and lasts but for a day or two. After the lapse of two or three days, according to circumstances, bread-and-water poultices, changed every few hours, are to be constantly applied over the sore. A distinct line of demarkation is usually to be seen by this time, and the slough gradually separates and comes away, leaving a healthy, cup-like depression, varying in depth and size according to the mass removed. Granulation proceeds rapidly, and the case is then treated as a simple ulcer. The slough separates at periods varying from six to thirty days, according to its size. The disease usually comes away entire with the slough; but where this is not the case the paste is to be applied to the remaining portion, as in the first instance, every second or third day, till the desired effect is produced.

Dr. M. KUHN, who has also used the arsenical pastes with advantage, directs attention to the importance of applying them, not directly to the surface, but to the substance of the growth. He advises the previous application of caustic potash, so as to produce an abraded or raw surface, which can then be acted on directly by the arsenical agents. It is to the want of adopting this preliminary step that Dr. K. attributes the failure of arsenic in many cases. (*Medical and Surgical Reporter*, January, 1870.)

MR. C. H. MOORE, MIDDLESEX HOSPITAL, LONDON.

In the article on "Cancer," by this gentleman, in Holmes' larger work on surgery, he commends the *tincturi ferri chloridi* internally. "Iodine, opium, and especially lead," he adds, "appear the most effective in retarding the growth of the tumor."

682. ℞. Plumbi iodidi,
Pulveris opii, āā ʒij.
Ferri sulphatis exsiccati, ʒss.
Glycerinæ, q. s. M.

To make a convenient paste. Apply to the swelling, so that it will thoroughly moisten the surface.

For tender and painful ulcers he advises the following:

683. ℞. Fresh stramonium leaves, ½ lb.
Lard, 4 lbs.

Mix with gentle heat for some time and strain. Spread on cotton wool and apply to the part.

DR. LANDOLFI, OF NAPLES.

This practitioner has obtained a wide celebrity through the use of a preparation which he claimed to be a specific cure in cancer, providing that the growth is accessible, and that the system is not already too deeply implicated in the cancerous cachexia. The formula he usually employed, although it differed somewhat in the relative proportion of the ingredients, was the following:

684. ℞. Zinci chloridi,
Auri chloridi,
Antimonii chloridi,
Brominii chloridi, āā ʒj.
Farinæ, } q. s. to form a thick paste.
Aquæ, }

To be applied on small portions of linen to the ulcerated surface.

The essential element he looked upon as the *chloride of bromine*, the quantity of which he often increased to ʒ ij or ʒ iij. The chloride of zinc he used chiefly for its hæmostatic qualities, and increased this ingredient when there was a marked tendency to hemorrhage. The pain of the application is considerable, and must be allayed by opiates. The application need not remain on more than twenty hours, and may then be replaced by an emollient cataplasm. About the eighth day the eschar should become detached and leave a healthy, granulating surface. If any points remain of less satisfactory appearance, or still presenting cancerous alterations, a little of the caustic paste is again to be applied.

Internally he believed it best, though not in all cases indispensable, to administer the chloride of bromine internally in doses of $^1/_{10}$ or $^1/_{12}$ of a drop, in pill form twice a day, for from three to six months.

LONDON HOSPITALS.

685. ℞. Zinci chloridi, ʒ iij.
Antimonii chloridi, ʒ ij.
Amyli, ℈ iv.
Glycerinæ, q. s. M.

Powdered opium may be added, to lessen the pain caused by this caustic, which is employed with success to destroy cancerous tumors.

686. ℞. Extracti belladonnæ, ʒ ss.
Acidi hydrocyanici diluti, f. ʒ j–ij.
Glycerinæ, f. ʒ j.
Aquæ destillatæ, Oj. M.

One fluid ounce of this solution is mixed with from one to three fluid ounces of distilled water, and compresses dipped in this mixture are applied to the cancerous tumors as a soothing lotion.

687. ℞. Opii pulveris, ʒ j.
Extracti conii, ʒ ij.
Acaciæ pulveris, q. s. M.

Divide into forty pills. One or two to be given in the evening, to combat the pains of cancer which cannot be operated on.

688. ℞. Conii foliæ,
Adipis, āā ʒ iss. M.

The conium leaves, which should be fresh, are boiled over a slow fire, in the lard, until they become friable, and then filter. This pomade is to be employed in frictions on cancerous tumors, at the same time that stramonium is given internally. If fresh conium leaves cannot be obtained, the pomade may be made with the extract of conium and lard.

MR. CAMPBELL DE MORGAN.

This London surgeon first used *chloride of zinc* in cases of cancer, with the idea that the frequency of the return of the disease after operating was due to the remains of its germs on its cut surface; and he hoped that the application of chloride of zinc to the wound would destroy any cancer-germs that might be scattered over it, and thus diminish the chance of recurrence. His prescription was:

689. ℞. Zinci chloridi, gr. xl.
Aquæ, f. ʒ j. M.

With this he freely washed the surface of the wound after operating.

M. MAISSONNEUVE, OF PARIS.

This distinguished surgeon attacked cancerous tumors with *caustic arrows*. This composition was as follows:

690. ℞. Zinci chloridi, 1 part.
Farinæ (wheaten flour), 3 parts.
Aquæ, q. s. M.
Make into a paste.

The arrows are formed by rolling this paste into cakes, which are then to be divided into strips of any desirable shape or size; then by drying they may be made to assume any desired degree of firmness or tenacity. MAISSONNEUVE uses the arrows in three forms: 1. Conical, for circular cauterization; 2. Lance-shaped, for cauterization in parallel lines; 3. Spindle-shaped, for central cauterization.

When used, they are introduced into the body of the tissue, so as to effect the destruction from *within outward*. If the tissues are soft, the arrows will penetrate them; if not, a passage must be made with a scalpel. This can usually be done without loss of blood if the arrow fills the wound completely.

"1. *Circular Cauterization* is specially applicable to tumors which project above the surface, as in tumors of the breast and the like. The arrows are introduced around the tumors at the distance of one-third to one-half an inch from one another, and the tumor is effectually destroyed in one hour, or two at most. By this method very little of the healthy tissue is destroyed, scarcely any blood is lost, and there is very little reaction.

"2. *Cauterization in Parallel Lines.*—In this method the caustic is introduced in parallel lines, so as to divide the substance to be destroyed into thin laminæ, which yield promptly to the destructive properties of the agent. This method has been found most useful in tumors that are deep-seated—as in the neck, the rectum, the uterus, etc.

"3. *Central Cauterization.*—In this method an opening is made with a scalpel carried through the middle of the tumor, and the arrows are pressed into this until they are completely buried in the tissues. This method is less energetic than either of the others, but is useful in superficial tumors. The chief advantages claimed for cauterization by MAISSONNEUVE are its powers of preventing purulent infection, erysipelas, surgical fever, hemorrhage, (it is a powerful hæmostatic,) and other dangerous contingencies of surgical operations."

DR. J. W. BRIGHT, OF KENTUCKY.*

This author, who claims to have had a long and successful experi-

* *Cancer, its Classification and Remedies.* Phila.

ence in the treatment of cancers, depends almost exclusively on certain preparations of the *chloride of zinc*. These are four in number, as follows:

691. ℞. Extracti podophylli radicis, ℥j.
Zinci chloridi, ℥iij.
Amyli,
Santali pulveris, āā ℥j.
Aquæ, q. s. M.
Make a thick paste.

The object of the starch is to give tenacity to the paste, and the red sanders to porosity, so that the full effect of the active constituents may be felt by the sore.

692. ℞. Zinci chloridi, ℥ss.
Aquæ, q. s. ad saturandum.
Keep in a glass-stoppered bottle, and apply with a glass brush.

The third preparation is like the first, with the substitution of carbolic acid for water. The fourth is an arrow of chloride of zinc. Take enough starch to absorb the moisture of the chloride, make a stiff paste, roll into sheets, cut the arrows to a point, and dry at a heat of 212°. Keep in a glass-stoppered bottle.

In using the paste it is spread on a piece of cotton or linen cloth, large enough fully to cover the sore and its margin. It may then be confined with adhesive strips, and renewed once in twenty-four hours. After three or four applications in this manner, the surface of the sore is white and hard. A light poultice should then be applied, and in about a week the slough loosens, and should be followed by healthy granulations. If small lumps remain, or subsequently appear on the edges of the scar, they will usually disappear by the application of the following ointment:

693. ℞. Iodinii ℈j.
Brominii, ℈iss.
Adipis, ℥j. M.

When, after removal by the paste, there seem to remain points of cancerous tissue at the bottom of the sore, they should be brushed with the saturated solution of zinc.

In employing the arrows, they are inserted around the tumor to the proper depth, punctures being previously made with a bistoury.

In connection with this local treatment, tonic, aperient and altera-

tive remedies must be prescribed as needed, and the hygienic and mental condition of the patient put upon the best possible basis.

DR. O CROOK, OF OHIO.

In the *Medical and Surgical Reporter*, August, 1869, this writer urges upon the profession the internal use of *poke root* in cancer. He prepares it as follows:

694. ℞. Phytolaccæ radicis, ℥ ij.
Alcoholis, ♁ j.

Macerate fourteen days and filter. Dose, fifteen drops to a tablespoonful after eating, the dose to be increased as fast as can be done not to excite decided nausea.

The effects of the medicine should be apparent in two or three weeks, lessening the pain of the cancer and arresting the growth of the tumor.

Locally, he applies the poke root grated, in the form of a poultice. But when the cancerous growth had already progressed until spontaneous suppuration had taken place, he believed the action of the root was no longer curative.

DR. FELL'S PASTE.

695. ℞. Zinci chloridi,
Pulv. sanguinariæ radicis, āā ℥ j.
Amyli, q. s. fora paste.

Apply on pieces of kid or wash-leather.

This preparation, which has been revived of late years, is but a modification of "Dr. Fell's cancer salve," famous half a century ago. It is a useful application in cancerous sores.

Another form of the same is:

696. ℞. Zinci chloridi,
Pulv. sanguinar. rad., āā ℥ j.

Rub together in the open air to a stiff paste. Apply on cotton-wool to the entire surface of the cancer. After about two hours it should be removed. The process may be repeated daily "until the wound presents that freedom from cancerous particles which one soon learns to recognize in using this paste." (Dr. J. E. NICHOLS, *Chicago Medical Journal*, March, 1875.)

M. MICHEL, OF PARIS.

The famous *sulphuric acid paste*, devised by this operator for removing external tumors, is made and applied in the following way: Asbestos, as soft and free from grit as possible, is reduced by rubbing between the hands to the finest possible fleecy powder. It is then mixed thoroughly with three times its own weight of strong sulphuric acid ($S O_3 H O$.) A mass is thus formed which may be easily worked with a silver or gold spatula into any size or shape corresponding to the tumor to be destroyed. In the application of the caustic, the adjoining healthy parts of the skin are carefully protected by applying a zone of collodion and pads of linen, and the patient is so placed that the surface of the tumor is perfectly level. The saturated acid asbestos is then laid on the surface to the necessary thickness. Rapid destruction of the tissues follows, with, after the first half hour or so, but little pain. An oozing of clear watery fluid appears, which must be carefully sopped up. After twelve or fourteen hours' action, the first application is to be removed, and, if necessary, a new portion of smaller size adapted to the sore. After this has been applied for twelve hours the operation is complete, and the healing of the deep excavation alone requires to be attended to.

JAMES E. GARRETSON, M. D., D. D. S.

This author remarks that in the treatment of *schirrhus of the tongue*, the use of caustic remedies is widely employed, and in instances recommended by very high authority. His own experience would suggest the following caustic:

697. ℞. Zinci chloridi, Aluminis pulveris, āā gr. v.
Acidi tannici, gr. ij.
Ferri persulphatis, gr. iij.
Glycerinæ, q. s. for a paste.

To apply this paste, draw the tongue forward, hold, and dry it well with a napkin. Lay some crystals of zinc on the part, and cover over with the paste. This may be allowed to remain as long as the tongue can be kept dry. Finally, wash the *débris* away, and the application is completed.

If severe glossitis supervene after such an application, it will imply that much more harm than good has been done. In making a caustic

impression under such circumstances, the parts should be quickly killed, not excited or provoked.

The galvanic cautery is thought by many to be greatly preferable to the potential cauterants.

Injection of *persulphate of iron* is still another means much employed and commended. Dr. GARRETSON, however, has not found it to answer his expectations.

Cancerous *epithelioma of the tongue* must either be extirpated in the most radical manner, or be soothed into quiet. Section of the lingual nerve and ligation of the lingual artery have been performed with the latter view.

Where operative means have not been thought advisable, patients have expressed themselves as receiving the greatest relief from the local employment, by means of an atomizer, of the following combination:

698. R. Acidi carbolici fluidi, f℥j.
Sodii sulphitis, ℥j.
Aquæ, f℥x. M.
For an atomization.

In *epithelioma of the lip*, also, this preparation will be found to afford much relief from pain, and to be softening and soothing; it has even seemed to possess a marked influence in retarding the progress of the disease. It may also be administered internally in teaspoonful doses.

The severe pain requires liberal administration of anodynes. Hypodermic injections of morphia may be used. For continuous stomachic administration, preference is to be given to the *bi-meconate of morphia*; the officinal strength of this medicine is that of laudanum, twenty-five drops representing one grain of opium.

DR. MORRELL MACKENZIE, OF LONDON.

Cancer of the Œsophagus.—As an aliment in this disease, milk is of the most value. The patient must, as far as possible be kept free from pain, and rest at night insured. Subcutaneous injections of morphia offer the most suitable means of effecting this end. In cold weather, the apartments should be kept warm, all the conditions of the patient tending to lower his bodily temperature. As the disease advances, absolute aphagia is established, and the patient must then be fed by nutritive and stimulating enemata. Instead of the large liquid

enemata which are commonly employed, it is better to use the semi-solid compounds of LEUBE, who has shown how greatly rectal digestion is assisted by the presence of pancreas.

The former, recommended by Dr. M., is:

699.	℞.	Beef, mutton or chicken,	℥ iv.	
		Pancreas,	℥ ij.	
		Fat,	℥ j.	
		Brandy,	℥ ij.	
		Water,	℥ iij.	M.

These ingredients, mixed together, will measure about six ounces. The meat sweetbread and fat must be first passed through a mincing machine. It is often desirable to add five or ten drops of laudanum to the enema, which should not be administered more than once in the twenty-four hours. The rectum should be washed out twice a week with warm water, three or four hours before giving the nutritive injection. It is necessary to use an enema-pipe with a bore of half an inch, otherwise the nutritious mass will not pass.

DR. NATHAN S. DAVIS, OF CHICAGO.*

Cancer of the Stomach.—This author is of opinion that in gastric cancer at any stage there is no reason in experience to believe the disease will yield to any kind of treatment.

The principal thing to be done is to confine the diet to bland, simple substances, which can be absorbed by the coats of the stomach; and these should be given in small quantities, so that what is taken at one time may be absorbed, without leaving any accumulation to be carried through the pylorus.

When the cases are somewhat advanced, the bowels are frequently not moved for many days, and the patient importunes for a cathartic medicine; but physic will only increase the distress, and should be withheld.

For the amelioration of the pain and to assist nutrition, Dr. DAVIS has employed with much success a solution of carbolic acid, rendered anodyne by paregoric, as:

700.	℞.	Acidi carbolici crystal.,	gr. vj.	
		Glycerinæ,	f. ℥ ss.	
		Tinct. opii camphoratæ,	f. ℥ iss.	
		Aquæ,	f. ℥ ij.	M.

One teaspoonful every three or four hours.

**Clinical Lectures on the More Important Diseases.* Philadelphia, 1875.

Lime-water and thin porridge may be given occasionally.

PROF. WILLIAM EBSTEIN, M. D., OF GÖTTINGEN.

Cancer of the Stomach.—This writer observes that, in spite of our ill success with remedies so far, we ought not to give up all hope that a specific for cancer may be some day discovered. It is impossible to say whether the fact that cancer of the stomach is extremely rare in certain countries (Egypt, Vera Cruz,) may not be made of some therapeutic use; at any rate, the subject is worthy of continued attention.

VON BENEKE has recommended the treatment of cancer with non-nitrogenous food, and with such stimulants as wine and tea; and although he starts from purely hypothetical premises, his method may be worth a trial in dealing with a malady for which there is as yet no cure.

At the present time our treatment must be purely symptomatic. The dietetic management of the patient is all-important. In stenosis of the pylorus, with considerable dilatation of the stomach, the use of the stomach-pump has in some cases afforded remarkable relief by unburdening the organ of the mass of stagnant and fermenting food which it contained. While, however, some patients are able to tolerate the instrument day after day, on account of the after-comfort which they derive from it, others are so much exhausted by the operation, or so little relieved by it, that it is impossible to continue it. In this latter class of cases the patients do best under the use of remedies which arrest fermentation in the contents of the stomach. One may give:

701. ℞. Benzine, gtt. x–xv.
Mucilage, f.℥j. M.
This amount four or five times a day.

Or, what suits many cases better, a few drops of carbolic acid, well diluted, five or six times a day. Both of these will diminish the frightful eructations of sour-smelling gas which rob the patients of their night's rest, and which narcotics do not in the least alleviate; and for the time they may completely arrest them.

In stenosis of the cardia, as soon as the diagnosis is tolerably clear, all attempts at passing a sound into the stomach must, of course, be abandoned, otherwise the consequences may be most serious. All we can do here is to nourish the patient by enemata.

Where the orifices of the stomach are not involved, although the peristaltic movements must necessarily be considerably impaired, yet so long as the growth remains localized, and the patient is not exhausted by hemorrhages or other accidents, the general symptoms may be less urgent. Sometimes it may even appear as if the patient's only malady were a severe chronic catarrh of the stomach. The treatment of this catarrh, and especially of such symptoms as the extreme anorexia, the nausea and the vomiting which characterize it, must then be our chief object. The best practice seems to consist in giving small quantities of food at frequent intervals, followed by two or three tablespoonfuls of very dilute hydrochloric acid (0.4 per cent.) In such cases transient benefit arises from small doses of *iodide of iron* in combination with bitters, the iodine apparently acting through its antiseptic and anti-putrescent qualities. In this way the harassing pain and discomfort caused by the perversion of the digestive functions may be much relieved. Narcotics should not be given too early, and the quantity of them should be as small as the severity of the symptoms will allow.

PROF. KUSSMAUL, OF FREIBURG.

In 1867 this writer first advocated the use of the *stomach-pump* in gastric cancer. He stated that relief only, but no cure, can be expected —1, in cases of cancerous stricture of the pylorus; 2, if the pylorus be very considerably contracted by a cicatrix; 3, if with even a moderate stricture the walls of the stomach have, in consequence of the chronic gastritis, undergone a permanent degeneration. That substantial relief may be afforded by the use of the stomach-pump is proved by the history of two cases of dilatation of the stomach thus treated by Dr. AFFLECK, in Scotland, as both patients provided themselves with stomach-pumps on their dismissal from hospital, to carry on the treatment for themselves. (*British Medical Journal*, May, 1872.)

DR. JAMES M. HUTCHINSON, OF PHILADELPHIA.

This physician reports (*Philadelphia Medical Times*, May 27th, 1876,) a case of *cancer of the pylorus*, in which great relief followed the washing out of the stomach on alternate days with dilute alkaline solution (a drachm of bicarbonate of soda to a quart of water) as recommended by KUSSMAUL.

The following conclusions seem to be deducible from Dr. HUTCHINSON'S case:

1. That washing out the stomach will be useful in dilatation of that organ dependent upon stricture of the pylorus, even if this be due to malignant disease, by lessening the frequency of the vomiting.

2. That it diminishes the intensity of the pain, by preventing extreme distension of the stomach, and by the removal of its irritating contents.

3. That it renders possible the introduction of food into the stomach, and its digestion.

DR. MILNE, OF LONDON.

Speaking particularly with reference to *uterine cancer*, this practitioner says in the *Obstetrical Journal for Great Britain and Ireland*, May, 1873, that the most reliable caustics are the chloride of zinc, the dried sulphate of zinc, and the nitrate of copper, and the cases suitable for their application are all those of encephaloid carcinoma and epithelioma, where the cervix alone is involved. As regards their mode of application, the dried sulphate of zinc should be first used, being applied to the diseased surface pretty freely through the speculum, the vagina being immediately thereafter plugged with cotton-wool, tipped at the uterine end with a little olive oil. This is to be applied till the slough comes away, after which the cervix is to be injected with a saturated solution of nitrate of copper. No caustic, he thinks, is better adapted to seek out, attack and destroy any cancer cells lying beyond the sore from which the slough has separated than nitrate of copper.

Dr. M. also administers internally, in such cases, ergot, continuing it in full doses, and for a long time. He believes it has a prophylactic effect on the re-appearance of the cancer, and leads to atrophy of the uterus.

DR. SAINT GERMAIN, OF PARIS.

702.	℞.	Acidi tannici,	ʒ iij.	
		Glycerinæ,	f.ʒ iij.	M.

Prepare little bags of gauze about an inch and a half long and a little larger than the thumb, fill them with dry linseed meal, and after having immersed them in the above solution, introduce them into the vagina for the relief of the pain accompanying cancerous ulceration of the uterine neck. One is allowed to remain in place for several

days and then removed; after free injection of the vagina a new sachet is introduced.

When the pain is very acute, the above solution may be replaced by the following:

703. ℞. Extracti belladonnæ, ℥ ij.
Glycerinæ, ℥ iij. M.
To be applied as above.

704. ℞. Acidi sulphurici, f. ℥ ijss.
Aquæ destillatæ, f. ℥ xv. M.

The patient being recumbent on the back, with the pelvis elevated, a glass speculum is introduced and a teaspoonful of this acid solution is introduced in contact with the cancerous ulceration, and retained there for five or six minutes, after which it is replaced by simple water. This operation is to be repeated twice a day. It is alleged that under the influence of this treatment the hemorrhages are more rare and less grave, and that the progress of the cancer is retarded.

PROF. ARMAND TROUSSEAU, PARIS.

705. ℞. Belladonnæ,
Stramonii foliæ, āā ℥ ss.
Aquæ, ℥ jss.
Boil down to a pint, strain, and add,
Tincturæ opii, f. ℥ ss–j.
This liquid is administered in the form of vaginal injections, to relieve the pains of uterine cancer. It is poisonous if given as enema.

RÉSUMÉ OF REMEDIES.

Aceticum Acidum has been used as a parenchymatous injection in malignant growths, and also as a local external dressing, with occasional good results. The *acetates* of lime and soda have been prescribed by Dr. E. CURRIE, of Paris, with asserted good effect. (Dose, ℥ ss daily.)

Alcohol. In the hypodermic use of this substance in cancer, Dr. HASSE (*Medicin. Centralzeitig*, February, 1874,) recommends that it be thrown, not into the new growth, but around its edges, thus obliterating the lymphatics which convey the infection, and producing atrophy of the growth itself. He repeats the injections every eight to fourteen days, allaying pain with ice-bags. His mixture is one hundred parts of alcohol to one of ether.

Ammonii Carbonas and *Chloridum* were often given internally by Sir ASTLEY COOPER.

Arsenicum, both internally, as Fowler's solution, and externally, as a caustic, has been largely employed. (See above, pages 471, 472.)

Brominium, in uterine cancer, has been extensively employed by Dr. WYNN WILLIAMS. (Page 469.) The *chloride of bromine* is deemed of the highest value by Dr. LANDOLFI. (Page 474.)

Carbolicum Acidum is used pure, as an anæsthetic, before applying caustics.

Carbonicum Acidum, injected up the vagina, in uterine cancer, is a valuable means of relieving pain. (See Chapter II.)

Chloral. Dr. FLEISCHER uses chloral locally in carcinoma uteri. He first washes out the vagina thoroughly, and then passes up to the cancerous surface some cotton-wool wetted with a solution of chloral (℥ ij to aquæ ℥ iij); this application is repeated every two hours. After a few applications, the pain is moderated, and the discharge becomes less offensive. (*Med. Chir. Centralblatt*, IX, 1875.)

Chloroform may be atomized as vapor on raw, painful surfaces.

Chromicum Acidum.

706. ℞. Acidi chromici, gr. c.
Aquæ destillatæ, f. ℥ j. M.

For hypodermic injection. Sixty drops of this may be thrown into neoplastic growths, at several points. The operation may be repeated every other day until there is produced redness and tumefaction. It should then be suspended for a week or two, and again resumed. The operation should bring about gradual absorption or atrophy of the mass.

Citricum Acidum, ℥ j-ij to aquæ f. ℥ viij, will frequently relieve the severe pain of cancer.

Condurango. The value of this substance in gastric cancer has recently been very carefully studied by Professor RUHLE, of Bonn. He used Friedreich's macerated decoction:

707. ℞. Corticis condurango, ℥ ss.
Aquæ, f. ℥ xij.

Macerate for twelve hours and evaporate to one-half the amount. Dose, a tablespoonful three or four times a day. It should be a dark brown, somewhat turbid fluid, slightly bitter and aromatic.

Professor RHULE has seen no evidence that it produces actual retrograde metamorphosis of the cancer. He has, however, been repeatedly told by patients who have used condurango for cancer of the stomach, that the chief symptoms—vomiting, loss of appetite, and the pain itself—have abated; that in one case a decided improvement of general health took place; and in others, out-patients who had been on its use for some time, in consequence of this decided improvement, ceased attending, apparently believing themselves recovered.

Creosotum. In epithelioma, Dr. FORNE reports, in the *Montpellier Medical*, February, 1872, good results from the topical application of creosote. The whole surface of the ulcer is lightly but firmly touched with a brush dipped in the pure article, after which a piece of lint wet with a gummy solution of creosote is applied. The treatment should be repeated every third day. Fifteen

or twenty applications may be required, but he reports commencing cicatrization after the first half dozen.

Dr. JOHN FRISSELL, of West Virginia, has, for a number of years, used with great satisfaction the following antiseptic and detergent dressing to cancerous surfaces. It is diluted more or less with water, and applied by strips of old muslin:

709. ℞. Tincturæ gallæ, f.℥ ij.
Tincturæ myrrhæ, f.℥ j.
Tincturæ opii, f.℥ v.
Creosoti, f.℥ j.
Acidi acetici, f.℥ ij. M.

For a lotion.

Cupri Nitras, in strong solution, is an efficient caustic.

Cupri Sulphas is employed as an escharotic.

Dioscorea Villosa. In cancer of the stomach, Dr. C. T. HART, of Wisconsin, says the wild yam is superior to any other agent he has tried in soothing the pain, distress and vomiting. (*St. Louis Medical Journal*, 1869.)

Ferrum. Various preparations of iron have been used in cancer. Dr. CARMICHAEL, of Dublin, claimed to have derived much benefit in epithelioma from washing the ulcerations with a solution of the sulphate. Professor H. H. SMITH, of Philadelphia, reported a case too far gone for operation, for which he prescribed Vallet's mass, gr. v–x, daily, and the powdered carbonate to be applied to the sore; and the patient lived eight years, the disease meanwhile making almost no progress. Dr. JUSTAMOND, of London, used to give gr. lx–c of the ammonio-chloride daily.

Gastric Juice. Professor SCHIFF, of Geneva, and others, have advocated the treatment of malignant ulceration by gastric and pancreatic juice. Dr. C. H. F. ROUTH, of London, who has tried the remedy, has reported favorably upon it.

Hydrastis Canadensis. Dr. EDWIN PAYNE, of London, has highly commended the yellow root, used in lotion, especially in epithelioma of the lips. It renders the parts much less painful, keeps the surface in a more healthy condition and neutralizes the fetor. His formula is:

709. ℞. Tincturæ hydrastis, f.℥ j.
Aquæ, f.℥ viij. M.

For a lotion.

Iodinium, in various preparations, is widely employed.

Iodoform, applied locally, relieves the pain.

Pepsina. (See Gastric Juice.)

Phytolacca Decandra has a wide-spread reputation in cancer. (Page 468.)

Plumbi Nitras. Nitrate of lead is a valuable application in epithelioma, warts, excrescences, etc.

710. ℞. Plumbi nitratis, ℥ ij.
Aquæ rosæ, f.℥ iv. M.

Apply three times a day.

Potassa Fusa. In rodent, epithelial or other cancerous formations that are superficial and of limited extent, the potassa fusa has advantages over any other caustic resorted to. Its effect is prompt, its action readily guided and controlled, and the destruction of the parts to which it is applied is complete. Its beneficial effects are not limited to the line of complete destruction. The cancerous proliferations which extend beyond the margins of a perceptible diseased condition, possessing a lower vital power than healthy tissue, are necessarily disturbed by the chemical action, while the pain produced by its use is often less than results from the use of the knife.

Potassæ Liquor, recommended by Sir BENJAMIN BRODIE. (Page 468.)

Potassii Bromidum has been used as a caustic in cancerous affections. M. PEYRAUD, of France, employs the powder, and with it states that he cures cancroids, provided they be not too extensive. The application at times, according to the seat of the disease, may be very painful, especially if the cancroid be somewhat extensive. The eschar formed by the powder has the thickness of a two-franc piece. It is not produced immediately, it is only after twenty-four hours that it appears. It is semi-transparent, if the wound does not bleed. It also seems that the wound upon which it rests is diminished in extent; one would say that it shriveled. This eschar is rapidly eliminated. (*Progrès Medical,* No. 36, 1876.)

Potassii Chloras, in saturated solution, is an excellent application to epithelioma. Indeed, it has been claimed to have cured some cases. It was first brought to notice by LEDESCHI, in 1845.

Silica. In the *Edinburgh Medical Journal,* Nov., 1875, Mr. F. BATTYE states that silica, powdered very fine, greatly relieves the pain in cancer. His prescription was:

711. ℞. Pulv. silicæ, gr. iij.
Morph. sulph., gr. j. M.
For three powders. One three times a day.

Possibly the anodyne action of the morphia was simply enhanced by fine trituration; at any rate, the effect was much better than the morphia alone.

Sodii Bicarbonas. Prof. BUSCH, of Bonn, has derived great benefit in epithelioma from frequent washings with soda. (*London Medical Record,* May, 1877.) His conclusions are: 1. Epithelial cancer commences in many cases as a simple proliferation of the superficial epithelium. 2. In this stage the disease is curable by persistent washing with solution of soda. 3. In certain favorable cases of superficial cancer of the face this method is successful, even when ulcers are present. 4. In many cases the recurrence of epithelial cancer after extirpation is prevented by alkaline washings of the cicatrix and adjacent parts. 5. It may be useful, as a prophylactic measure, to remove the epithelial deposits which sometimes take place on the breasts of elderly women.

Sulphuricum Acidum, used by M. MICHEL. (Page 479.)

Tannicum Acidum. According t[illegible] ALBE, [illegible] possesses the property of destroying the cancer [illegible] of the products. The author has attempted [illegible] iections into various tumors, and he has s[illegible] neck diminish con-

siderably under its influence. A tumor as large as a hen's egg, implanted upon the periosteum of the lower jaw, and the development of which had been very rapid, necrosed quickly under the influence of these injections, and soon fell off.

Terebinthinæ. Chian turpentine in pills with sulphur, gr. iij of the former to gr. ij of the latter, was claimed in 1880 as a curative agent in uterine cancer, by Dr. JOHN CLAY, of Birmingham. Other observers have not sustained the claim.

Thuja Occidentalis has been used both internally and locally to cancerous affections, with asserted advantage.

Zinci Chloridum is the most widely used of all the escharotics in cancerous affections. (Above.) It is highly recommended by European surgeons. Its power to arrest phagedenic action is remarkable. It not only has a canterant property, but it is peculiarly alterative. It may be mixed with flour or other substances to form a paste. One part to three of flour is preferred by some. In epithelioma, Dr. GARRETSON prefers it in its purest form. He believes that anything less than killing the part outright will always be found productive of far more harm than good; therefore he covers the part to be acted on with the undeliquesced crystals of the chloride, corroding away, by the immediate repetition of this agent, the parts, until the diseased scales are all destroyed. The chloride has also been given internally, gr. $\frac{1}{2}$ in a wineglassful of caraway water every morning.

Zinci Sulphas has been also used as an escharotic.

Mineral Waters. The Eaux de Celles (Ardèche), in France, have been recommended by various eminent French surgeons as beneficial in cancer. In the United States, the Missisquoi water, in Franklin county, Vermont, is said, on high authority, to have proved a valuable palliative in this disease. Both these waters contain considerable quantities of alkaline carbonates and other ingredients, and resemble each other in a general way, but present nothing which we could single out as probably active against cancerous disease. Sir JAMES PAGET attributes their value to the influence they exert on the arthritic diathesis often present in cancer. He says of the Missisquoi water, that its influence on cancer itself, is, he believes, absolutely nothing, "but it sometimes gives comfort 'by the way.'" (*Clinical Lectures*, page 338.)

It is probable that some of the mineral springs containing arsenic would be available in cancer. Such a one is that of the stream called Whitbeck, rising in the Black Combe Mountains, in West Cumberland, England, which percolates through arseniferous cobalt ores, and contains arsenic in determinable quantity.

Electrolysis. Various surgeons in Europe and America have reported cures of schirrhous or other malignant tumors by electrolysis. A powerful apparatus must be used, such as that of KRUGER & KIRSCHMANN (that of ALTHAUS is too weak.)

DRS. BEARD and ROCKWELL state that pain may be relieved, and sometimes a reduction in size may be obtained, by the ordinary method of electrolysis, or by simple external faradization or galvanization; and by these methods, also, the tumor may be arrested in its progress for a long time. The prognosis in epithelioma is good, but of schirrhus doubtful. In cancer-

ous tumors of the breast, those which involve but a limited portion of it, where the skin is soft and yielding, and of natural color, not unfrequently yield to electrical treatment. Not only is the pain relieved, but the tumors grow softer and smaller. Sometimes their growth is arrested, and they remain stationary for years. Even in the worst forms of cancer the surgeon is frequently able to relieve the terrible pain that accompanies it by galvanization. "It is not sufficiently understood what a magic influence an intelligently-directed application of the constant current exercises, as a rule, over the throbbing pain of schirrhus."

The electrolytic treatment of malignant tumors has also been carefully studied by Dr. WILLIAM B. NEFTEL, of New York. He sums up his researches with the positive declaration that the most malignant tumors, such as true cancer, "at a certain stage of their development, can be radically cured by electrolysis, employed according to certain methods." The method he employs is by inserting needles around the mass, and increasing gradually and slowly the current intensity. The treatment is comparatively painless, and may be applied to cases which are quite far advanced. Little reaction follows it, and with judicious after-treatment a fair percentage of success may be expected. Dr. NEFTEL'S cases have been published in *Virchow's Archives*, and elsewhere, and deserve careful consideration.

Pressure. (See page 470.) A recent writer in the *Lancet*, 1878, remarks that it is obvious if pressure is to be effective it must be applied around the periphery of the growth, where the cell proliferation is most active. This must be obtained, it is said, by the careful adjustment of pads of cotton-wool. The neatest plan would seem to be the employment of compressed sponges, which might be bandaged firmly around a tumor of the breast, and then allowed to swell by imbibition of water. The constriction of the chest would of course be great, and thoracic respiration seriously interfered with. But the patient might be kept in bed, where abdominal respiration might suffice.

XV. THE TREATMENT OF SCROFULA.

PROF. S. D. GROSS, OF PHILADELPHIA.

This writer observes that few practitioners really understand the nature of strumous diseases. They seem not to know that they occur under the most varied forms, and that the treatment must be varied to meet each case.

For practical purposes it is sufficient to consider scrofulous patients divided into two great classes, the vigorous and the weak. The former are no doubt in the minority, but are nevertheless a well-marked and not infrequent class.

As a general rule, it is well to begin the treatment with a mild yet efficient aperient, to clear out the bowels and improve the secretion. After this, if the patient is feeble and exhausted, a tonic course should be instituted; but if, on the other hand, he is strong and plethoric, as denoted by the state of his pulse and complexion, much time will be gained and structure saved by the use of antiphlogistics, especially tartar emetic and Epsom salts, in the form of the saline and antimonial mixture (F. 5), properly guarded with tincture of opium. While the lancet must be employed with great care, Dr. GROSS is satisfied that it is often of immense benefit in arresting the morbid action. In scrofulous inflammation of the eye, throat and lymphatic glands, its effects are often marked and permanent. But these active measures must ere long in the case be superseded by other remedies, similar to those generally applicable in the more common form of the disease.

Among these, *iodine* may be regarded as the most important. When a purely alterative effect is desired, it is best given in the form of

LUGOL'S CONCENTRATED SOLUTION.

712. ℞. Iodinii, ℈j.
Potassii iodidi, ℈ij.
Aquæ destillatæ, f.℥vij M.

From five to ten drops every eight hours, in a wineglassful of sweetened water, gradually increased to fifteen, twenty, twenty-five or thirty drops, according to the tolerance of the system.

When scrofula is associated with constitutional syphilis, rheumatism or mercurial disease, *iodide of potassium* is best given alone, in some aromatic syrup, or, if there is much nervous irritation, in hop tea.

The *iodide of iron* is one of the most valuable scrofulous remedies we possess. It is particularly beneficial in disease of the cervical glands, upper lip, eyes and joints. It may be given in pill, in union with quinine and opium. If undue vascular action is present, gr. $^1/_{16}$–$^1/_8$ of tartrate of antimony and potassa may be added to each dose.

In whatever form iodine is used, during its exhibition the system should be free from vascular excitement; and after it has been given for a fortnight, it should be omitted for several days, when it may be resumed and given as before. The initial doses should be small and gradually increased. If it acts as an irritant, the doses must be reduced, or else combined with opium or hyoscyamus. If these rules are observed, it exerts a much happier influence on the disease, while their neglect often results in great mischief.

Barium is a remedy of great value in scrofula, often succeeding where iodine fails. It is particularly serviceable in chronic enlargement of the cervical glands, both before and after the establishment of suppuration. It is chiefly adapted to patients with a languid circulation, a pale, tallow-like complexion, a flabby tongue, indigestion, and cold extremities. Its use is contra-indicated where there is inflammatory excitement, or congestion of any important organ.

713. R. Liquoris barii chloridi, q. s.
Six to eight drops at a dose, cautiously increased to ten or fifteen drops, three times daily, in a wineglassful of hop tea or a half ounce of syrup of orange peel.

Exhibited in large quantities, it produces symptoms of mineral poisoning.

Of the preparations of *mercury*, the bichloride is the best, gr. $^1/_{20}$–$^1/_{10}$ thrice daily, in pill or solution. Thus administered, it yields hardly in efficacy to iodine, and is probably superior to barium. The system should be properly prepared for its reception, and if it act as an irritant to the intestinal canal, its use must be suspended, or it must be guarded with opium. Needless to add that salivation should never be induced.

Cod-liver Oil, though not infrequently prescribed indiscriminately and where it does no good, is especially valuable where there is a decided tendency to emaciation. The dose is f. $\frac{\text{ʒ}}{\text{ʒ}}$ ss, thrice daily, in good

ale or along with a little brandy. Its use must be continued steadily and persistently for a long time.

Whatever remedies are employed, the closest attention should always be paid to maintaining the bowels regular and active; to providing the patient with a light and nutritious diet; moderate and regular exercise in the open air; and warm and comfortable clothing.

PROF. H. H. TOLAND, M. D., OF SAN FRANCISCO.*

This author recommends warm clothing, a light and nutritious diet, moderate exercise, warm salt-water baths, and, where practicable, a change of air.

When the digestive organs of scrofulous children are deranged, especially if diarrhœa exists, and the tongue is furrowed with red edges, half a grain of *calomel* should be given at night until the secretion of the intestinal tract becomes healthy. After that the following preparation will prove extremely beneficial:

714. ℞. Bismuthi subcarbonatis, ℥ ij.
Tincturæ nucis vomicæ, f. ℥ iss.
Syrupi zingiberis, f. ℥ j.
Syrupi simplicis, f. ℥ iij. M.
A teaspoonful four times a day for a child four years old.

When scrofulous children have swollen lymphatic glands about the neck, constipated bowels and strumous ophthalmia, the following combination will be found superior to perhaps any other that can be devised:

715. ℞. Extracti sennæ fluidi, f. ℥ iv.
Tincturæ nucis vomicæ, f. ℥ iss.
Tincturæ aconiti radicis,
Acidi hydrocyanici, āā gtt. xv.
Syrupi zingiberis, f. ℥ iss.
Syrupi simplicis, f. ℥ ij. M.
A teaspoonful four times a day for a child four years old.

Should the bowels remain constipated, the quantity of the senna may be increased. It acts on the liver, and exerts a decidedly beneficial effect on the general disease. When this has been continued for some time, it is often well to change it for the following, which will be found an excellent substitute:

* *Lectures on Practical Surgery.* Phila., 1877.

716. ℞. Quiniæ sulphatis, ℥j.
Syrupi rhei aromatici,
Syrupi zingiberis, āā f.℥j.
Syrupi simplicis, f.℥ij. M.
One teaspoonful three times daily.

When the child is pale and emaciated, without the existence of intestinal irritation, ℥ ij of the precipitated carbonate of iron may be added to either of the above mixtures, with, in many cases, the happiest result.

When the lymphatic ganglions, submaxillary glands or testicles become enlarged, the *iodide of potassium* is preferable to any other remedy. By far the best form when the patient is near the age of puberty is Blanchard's pills, *pilulæ ferri iodidi*, U. S. Ph. The worst case of ganglionic enlargement will yield in three months to the use of these pills. Dr. TOLAND has not found cod-liver oil of much value in this disease.

Locally, to scrofulous enlargements and indurations, an excellent application is:

717. ℞. Tincturæ arnicæ,
Tincturæ iodinii, āā f.℥ss. M.
Paint the parts morning and evening.

When the skin is delicate, as in children, we may use:

718. ℞. Potassii iodidi, ℥j.
Alcoholis, f.℥j.
Aquæ, f.℥xj. M.
Apply on saturated lint to the part, and cover with oiled silk.

Operations for scrofulous affections should be confined to the bones, and should not be performed until the periosteum is detached and the whole of the disease removed; then the bone is speedily reproduced, and the result in many cases extraordinarily successful.

MR. WILLIAM SCOVELL SAVORY, OF LONDON.*

Before a course of any medicine is commenced, the condition of the digestive apparatus should be carefully examined, and any disorder present rectified if practicable. Strict attention to diet, and the regular use of a mild aperient, is most commonly sufficient to effect this. A few grains of rhubarb and soda, for some nights in succession, occasionally combined with a little gray powder, and then followed by

* Contributed to Holmes' *System of Surgery*, Vol. I., London.

a dose of castor oil the next morning, in order to clear out the canal, usually succeeded well.

This premised, it is now proper to begin the systematic exhibition of tonics. Of these, there is a great variety, appropriate to different conditions.

Iodine.—The preparations of iodine are most likely to prove serviceable in the absence of all fever and vascular excitement. If these are present, they often only increase the mischief. They may usually be prescribed with advantage in simple, but concentrated decoction of sarsaparilla.

Iron.—The use of iron is especially indicated when the symptoms of anæmia predominate; when the blood seems poor in red cells; especially when this is combined with a feeble circulation and general want of tone. The *potassio-tartrate* is especially useful in children, and has the additional advantage of combining with alkalies. The *vinum ferri* is a mild and simple preparation, and often a most valuable one. But the *sulphate*, when it can be borne, is sometimes much more efficacious; and the *tincture of the perchloride* is perhaps the most powerful of all. All cases of debility are, however, not suited by iron. When the lips and conjunctivæ are florid, it is least likely to agree.

Iron and iodine may often profitably be prescribed in combination. The syrup of the iodide of iron is a convenient officinal form.

Quinine, or other form of bark, is especially called for when the flesh is flabby, when there is great debility, when the appetite is bad and the excretions tolerably healthy. It may often be advantageously combined with iron.

The *mineral acids* are generally given in similar conditions. They are especially useful in checking the profuse perspiration of hectic fever.

The *alkalies* and their carbonates are valuable in scrofulous dyspepsia. They are more particularly indicated when the urine is highly acid, and contains an excess of the lithates, or still more, any free lithic acid. For children, lime-water, either in milk or in sarsaparilla, is often serviceable.

Emetics.—When there is much local disturbance about a tuberculous deposit; when the inflammation appears to be independent of any change in the mass itself, and more especially if this be combined with

any gastric disturbance, the operation of an emetic will often be followed by signal improvement.

Aperients are generally required from time to time during the course of tonics, and always when the state of the tongue and the excretions indicate a loaded condition of the intestinal canal, or the presence of morbid matter.

Cod-liver Oil.—No other remedy in scrofula enjoys so high a reputation as this. That the best effects may be obtained from its use, it must be taken for a long time, for months, or even years. A teaspoonful to begin with, twice or thrice daily, gradually increased, for adults, to a tablespoonful, may be considered a proper dose. When the stomach is weak, and there is a tendency to nausea, a solution containing $1/40$ to $1/30$ of a grain of strychnia acidulated with nitric acid, often proves a most useful vehicle. The oil can be taken in larger quantities and for a longer period in cold than in warm weather. In cold weather the oil should be slightly warmed before it is taken.

Hygiene.—All medicines should be only accessory to hygienics. The food should be nutritious and abundant. Stimulants in moderation are allowable. A scrofulous mother should not suckle her children. The child should not be weaned until after "teething." Flannel should always be worn next the skin.

PROF. J. LEWIS SMITH, M. D., NEW YORK.

As scrofula is an essentially hereditary disease, its treatment must commence in infancy. The most enlightened rules of diet and hygiene must be observed. Of the strictly medicinal agents, cod-liver oil is the most useful. It possesses real value in the erethitic form of the diathesis, but none in the torpid form. Iodine, internally, is especially serviceable in glandular hyperplasia. The iodides of iron and starch are the best forms. The latter may be given by dropping one to five drops of the officinal tincture of iodine on a little powdered starch, and giving it in syrup.

For the *swollen glands* the officinal preparations of iodine are too stimulating. The following is better:

719. ℞. Potassii iodidi, ℥j.
Extracti stramonii, ℥j. M.
To be rubbed over the gland several times daily.

Or:

720. ℞. Liquoris iodinii compositi,
Glycerinæ, āā ℥ss. M.
To be applied three times daily, with thorough friction, till the skin is irritated

When the glands become actively inflamed, iodine applications should no longer be employed. Poultices should be applied, and resolution hastened.

DR. F. P. PORCHER, CHARLESTON.

721. ℞. Decocti stillingiæ, Oj.
Acidi nitrici, gtt. xvj. M.
Two ounces, thrice daily, in scrofulous and syphilitic cachexia.

A neater formula for administering this popular anti-scrofulous remedy is:

722. ℞. Fluidi extracti stillingiæ, f.℥ss.
Syrupi sarsaparillæ, f.℥viij. M.
A tablespoonful three times a day. This is undoubtedly an efficacious remedy.

SCROFULOUS DISEASE OF THE JOINTS.

The propriety of operating on scrofulous subjects with these complaints, when it can by any means be postponed or avoided, has been much discussed, and there is no unanimity upon it at present.

M. VERNEUIL, an eminent authority, has, not long since, very strongly pronounced against it. He states that while the immediate results are very favorable, often more so than in healthy constitutions, the disease is almost sure to re-appear, either at the same spot in other joints, or in some of the viscera. The wound produced by the surgeon heals up, but the patient dies before long with albuminuria, general œdema, fatty degeneration of the liver, or tubercle. M. LARRY coincided in this view, and believed that he had witnessed it amply confirmed from his own experience. (*Gazette des Hopitaux*, June, 1875.)

The experience of Sir JAMES PAGET leads him to a different conclusion. (*Clinical Lectures and Essays.*) He believes that scrofulous patients have no special liability to the fatal consequences of operations, except in so far as they are feeble. The relief from pain and the removal of irritation more than compensate the shock they are subjected to. In the large majority of cases, especially of chronic cases, the removal of a scrofulous part is followed by improved health.

Yet he acknowledges that such are liable to have the disease break out elsewhere, or to become tuberculous; and that also sometimes the wounds heal very slowly, and are apt to become like scrofulous ulcers.

In order to overcome this last-mentioned difficulty, which is by no means of infrequent occurrence, and exceedingly annoying to both patient and surgeon, Mr. CAMPBELL DE MORGAN adopted the use of *chloride of zinc*. As employed by him, he states that in amputations for abscess of the joints in scrofulous subjects, the wounds heal as rapidly and in all respects as satisfactorily as in healthy ones. His plan is to open the abscess freely, clean it from pus, and then to sponge it "repeatedly and roughly" with a solution of chloride of zinc, gr. xl to aquæ f. ℥ j. He has seen no instance where the lotion has done harm, and in nearly every case manifest and great advantage comes from its use. (*Transactions of the Clinical Society of London*, 1868.)

SCROFULOUS OPHTHALMIA.

3. ℞.	Coniæ,		gr. v.	
	Alcoholis,			
	Aquæ,	āā	f. ℥ ss.	M.

Used with advantage in some cases of scrofulous ophthalmia with photophobia, by rubbing near the eyelid several times daily.

In the spasmodic contraction of the orbicularis in scrofulous children, Professor MAUTHER, of Vienna, has recommended penciling the eyelids twice or thrice daily with the following:

724. ℞.	Coniæ,		gr. j.	
	Olei olivæ,		f. ℥ ij.	M.

For local use.

DR. JAMES BRAITHWAITE, OF LEEDS, ENGLAND.

725. ℞.	Extracti belladonnæ,	gr. iv–v.	
	Potassii iodidi,	℥ ss–j.	
	Syrupi aurantii,	f. ℥ j.	
	Aquæ,	f. ℥ vij.	M.

Two teaspoonfuls every four hours to a child two years old.

Dr. BRAITHWAITE thinks iron is injurious in strumous ophthalmia, and trusts to belladonna, given under the following conditions (*Practitioner*, October, 1872): It should be given early, without waiting till other means fail; extract of belladonna rubbed up with glycerine should be applied over the eyelids, eyebrows and temples (atropine is liable to produce irritation.) Hardly a case but improves rapidly under this treatment.

Mr. J. WARRINGTON HOWARD strongly recommends, in obstinate cases of this complaint, to apply a *blister* the size of a sixpence behind the ears. Locally, he washes the eyes with a weak solution of alum, and at night smears the edges with olive oil. This is aided by the administration internally of cod-liver oil and iron. (*St. George's Hospital Reports*, 1871.)

When the *cornea* is involved through chronic scrofulous ulceration, especially when the disease has progressed into its later stages in strumous children, Mr. JONATHAN HUTCHINSON has derived great advantage from the insertion of a *seton*. He takes two threads of thick silk, and places them in the integument over the temple, among the hair, so that they will cause no deformity.

Dr. H. H. TOLAND has found the best collyrium to remove the excessive photophobia that always exists in strumous ophthalmia to be a solution of *nitrate of silver*, gr. ij to f. ℥j of distilled water. Its use should be abandoned as soon as possible, and a solution of alum, gr. v to aquæ f. ℥j, be substituted, for fear of staining the conjunctiva. Constitutional treatment is always demanded in addition.

SCROFULOUS ENLARGEMENTS.

Dr. KARL STOERK, of Vienna, has tried various intercellular injections in some two hundred cases of vascular, fibrous and cystic struma.* In some instances he employed the following:

726. ℞. Alcoholis, f. ℥j.
Tinct. iodinii, gtt. xx. M.

Adding the iodine in order to prevent the acetous fermentation in the alcohol in consequence of its mingling with the degenerating tissue of the tumor. He believes, however, that a more efficient preparation is:

727. ℞. Alcoholis, f. ℥ijss.
Iodinii, gr. xxx. M.

Of either of these sufficient should be used for the parenchymatous injection, and a second not be given until all signs of the action of the first had disappeared. By observing this precaution, he had never seen bad consequences from this treatment. When the struma is cystic, the contents of the cyst should first be removed.

* *Beiträge zur Heilung des Parenchym. und Cysten Kropfes.* Erlangen, 1874.

SCROFULOUS ULCERS.

The propriety of attempting to heal and close up scrofulous ulcers is not yet decided upon among surgeons. Some believe that they act as natural outlets for an exudation which might otherwise be deposited in more important parts—the lungs, for example—and that, therefore, they should not be interfered with. This opinion is maintained by Dr. GEORGE B. WOOD and others, while the contrary is asserted by Sir JAMES PAGET, etc.

In regard to the plan of cure, Professor GROSS remarks they should be treated rudely at first and gently afterwards. The undermined edges are cut away with the knife or scissors, and the surface is thoroughly touched with the dilute acid *nitrate of mercury*, the solid *nitrate of silver* or *sulphate of copper*, the application being repeated every other day until there is an appearance of healthy granulations, when milder means, such as opium cerate or the dilute ointment of nitrate of mercury, takes its place. If disintegrated glands are present, they are removed with the knife or destroyed with Vienna paste; for so long as they remain no substantial progress can be made toward a cure. Sinuses are traced out with a bistoury, unless they involve important structures, when stimulating injections or the seton must be used. The application of dilute tincture of iodine on the surface around the ulcer will often expedite the cure.

RÉSUMÉ OF REMEDIES.

Alcohol, in the form of wine, beer or distilled spirits, has often an excellent effect. Professor GROSS says that many emaciated, scrofulous patients rapidly become fat under the use of small quantities of whisky taken frequently through the day. Dr. ALEXANDER STEEL, of New York, recommends gentle, moderate stimulation, by means of malt beverages, as corrective of the scrofulous condition of the blood. (*Medical Gazette*, Jan., 1871.)

Alkalies. In scrofulosis, when oxaluria is present, soda or potassa alkalies should be administered, and saccharine food avoided.

Ammonii Iodidum is useful in scrofula attended with glandular enlargement. The dose is gr. iij.

Aqua Picis is pronounced by Dr. COPELAND to be one of the most efficacious means we possess against scrofulous affections, when aided by a suitable diet and regimen. He administers it freely, and uses it externally as a lotion and dressing to ulcerated glands, etc.

Arsenicum deservedly occupies a high place among the internal remedies in scrofula. DONOVAN'S solution is an appropriate form.

Auri Pulvis. Powdered gold has been highly praised as an alterative in scrofulous affections and strumous glandular enlargements. The dose is gr. ¼–½, gradually increased to gr. iij, thrice daily, in pill form.

Barii Chloridum is especially valuable when languid circulation and irritability of the mucous surfaces are present. It is said to be particularly adapted for females with menstrual irregularity. The following formula may be employed:

728. ℞. Barii chloridii, gr. x.
Tincturæ ferri chloridi, f. ʒ ij–iv.
Syrupi aurantii, f. ʒ x. M.
One or two tablespoonfuls two or three times a day.

Bromine is a useful remedy. The following solution is a good one for internal administration:

729. ℞. Brominii, ♏ x.
Aquæ, f. ʒ vij. M.
To commence with, gtt. vj, three or four times daily.

Calcii Chloridum. In scrofula with glandular enlargement of the neck, Dr. WARBURTON BEGBIE has extolled chloride of calcium, gr. x–xx for one dose, given in milk after food, and continued for some time, its good effects in many cases not at once becoming apparent. Dr. COPELAND also recommends it strongly.

Calcii Iodidum, gr. ½, thrice daily, used as the last-mentioned substance.

Calcii Sulphidum. Dr. RINGER has found the sulphides extremely valuable in scrofulous glands and in chronic strumous sores and abscesses. A favorite formula with him for children is:

730. ℞. Calcii sulphidi, gr. j.
Aquæ, ʒ ss. M.
Dose, a tablespoonful every hour.

It is essential that the medicine be compounded daily, as the salt rapidly becomes oxydized or changed into a sulphate. Or:

731. ℞. Calcii sulphidi, gr. 1/10–½.
Sacchari lactis, gr. x. M.
Four to six of these doses a day for an adult.

The treatment must be continued several weeks in order to effect a cure.

Calcis Aquæ is sometimes productive of benefit in long-standing scrofula, when gland after gland is attacked. A tablespoonful should be given in milk three or four times a day.

Calcis Phosphas Præcipitata has been recommended as an excellent palliative. In scrofulous ulcers it is given with benefit, in doses of gr. viij–xx daily, taken with the meals, so as to be thoroughly mixed with the food. In scrofulous diarrhœa good results are obtained from doses of gr. vj–x daily.

Conium has been strongly advocated in scrofulous affections. Its effects are most marked in favoring the absorption and removal of enlarged glands and in

promoting the healing of scrofulous sores. Dr. BAUDELOCQUE, of Paris, obtained excellent results from its use in the treatment of children so affected; and more recently, also, Dr. ALEXANDER FLEMING, Sr., Physician to the Queen's Hospital, Birmingham. (*British Medical Journal*, February, 1871.) He says for twenty years he has adopted the following plan of administering it, with good results: The fresh green fruit is mixed with its own weight of white sugar, and reduced to a pulp. Five grains or more of this conserve are given three times a day. It loses its activity in three or four weeks, and must be renewed. *Conia* has been recommended in strumous ophthalmia. (Page 498.)

Ferri Carbonas. Dr. BYFORD prefers this form of iron to all others in scrofulous affections. He gives it pure, gr. x–xij, thrice a day, suspended in thick mucilage.

Ferri et Ammoniæ Citras is a useful remedy, particularly recommended by its mild taste, which adapts it for administration to children.

Ferri Bromidum has been recommended in ointment, as an application to scrofulous swellings:

732.	℞.	Ferri bromidi,		
		Glycerinæ,	āā	1 part
		Adipis,		14 parts. M.

**Ferri Iodidum*, in the form of the officinal syrup, is a powerful remedy in all forms of scrofula.

Hydrargyrum. In infantile scrofula, especially during the first three years of life, Dr. WILLIAM H. BYFORD considers mercury the most efficacious of all remedies. He prefers to give calomel or the corrosive chloride in very small doses, combined with taraxacum (which see.) The undoubted value of mercurials in many cases is no doubt owing, as has been suggested by Dr. JACOBI, to the presence of a syphilitic taint in the child, frequently putting on scrofulous forms. As this taint is probably present in half the children born in large cities, its early detection and treatment are of first importance. The best preparation is probably the bichloride. (Page 492.)

**Iodinium* and its compounds are the most efficient remedies we possess in scrofulous affections. They are employed both externally and internally. It may be administered alone or in combination. An excellent method is *iodized milk*:

733.	℞.	Iodine,	1 part.	
		Alcohol,	10 parts.	
		Fresh, warm milk,	90 parts.	M.

Its external use as an absorbent is often disappointing, unless backed by an appropriate internal and hygienic treatment. Mr. FURNEAUX JORDAN states that it should not be applied directly to the enlarged gland, but a short distance from it, as to the nape of the neck when the cervical glands are involved. Thus applied, in his hands it never fails to bring about reduction.

Juglans Regia. The common European walnut has a high reputation in France and Germany for its specific action in scrofula. Professor NEGRIER, of Angiers, recommends that children so affected take a teacupful of an infusion of the

leaves, two, three or four times a day; or, as an equivalent, gr. vj of the aqueous extract. At the same time, a strong decoction is applied to the ulcers, and to the eyes as a collyrium.

Lappa. The burdock has an extensive popular reputation in scrofulosis. The root is used as a decoction, (℥j to Oj,) a fluid ounce thrice daily, or the fluid extract, which may readily be made into a syrup. It is said to be particularly useful in scrofulous skin diseases.

**Morrhuæ Oleum* is of the greatest benefit in the scrofulous or tuberculous diathesis, but scrofulous glandular enlargements are generally but slightly influenced by it. After, however, suppuration has taken place, the action of the oil is more manifest. Discharges from scrofulous abscesses often speedily disappear under its use. In scrofulous diseases of the skin, joints and bones, as well as in scrofulous ozæna, otorrhœa and ophthalmia, it is productive of excellent results, when persevered in and accompanied by good hygienic treatment. (Pages 492, 496.)

Phosphoricum Acidum Dilutum has been strongly recommended, in doses of ♏v, gradually increased to ♏xx or more, in infusion of calumba. Thus given it may be continued for a long time without unpleasant effects.

Pipsissiwa, or *Chimaphila*, has been much lauded by Professor GEORGE B. WOOD, in external forms of scrofula. He states that a long experience with it leads him to place it, in regard to its power over the disease, next to cod-liver oil, iron and iodine.

Phytolacca Decandra. This is by many American practitioners esteemed a valuable remedy in general scrofulous cachexia. Dr. C. H. FORT, of Tennessee, has obtained excellent results in treating numerous scrofulous cases among the negroes and half-breeds with the following. (*Med. and Surg. Reporter*, March, 1877):

734. ℞. Tinct phytolaccæ decandræ, f.℥iij.
Tinct. iodinii,
Acidi nitro-muriatici, āā f.℥j.
Aquæ, f.℥ij. M.

Shake, and take one teaspoonful three times a day.

Of course proper hygienic regulations must be insisted upon. Dr. WM. H. BARRY, ex-president of the Arkansas State Medical Association, has also reported extraordinarily good results from this agent. (*St. Louis Clinical Record*, June, 1877.) He generally uses the following formula:

735. ℞. Fl. ex. phytolaccæ decandræ, ℥ij.
Syrupi sarsaparillæ, ℥v. M.

Tablespoonful three times daily.

Tincture of the fresh root, he thinks, is better than the fluid extract.

736. ℞. Radicis phytolaccæ, ℥ij.
Spiritûs frumenti, Oij. M.

Digest eight days. Take a tablespoonful thrice daily.

Potassii Chloras, in doses of gr. v–xx, four times daily, in pure water, is highly spoken of as a remedy in scrofulous enlargements and ulcerations. As a local application to swellings and enlarged scrofulous joints, the following ointment may be used:

737. ℞. Potassii chloratis, ℥ij.
Adipis, ℥j. M.

Potassii Iodidum. For removing strumous enlargements and deposits of aplastic and tuberculous matter, Mr. Erichsen has found the following formula extremely useful for adults, the dose being proportionally diminished in the case of children:

738. ℞. Potassii iodidi,
Potassii chloratis, āā ℥j.
Potassii bicarbonatis, ℥iij. M.

Divide into twelve powders, of which one is to be taken night and morning in a half-pint of warm milk.

Drs. Meigs and Pepper recommend the following combination in children:

739. ℞. Potassii iodidi, gr. xlviij.
Syrupi ferri iodidi, f.℥ij.
Syrupi zingiberis, f.℥x.
Aquæ, f.℥iss. M.

A teaspoonful, thrice daily, in water, at five years of age.

Potassæ Liquor, in doses of ♏xxx–lx, three times a day, is said to frequently diminish scrofulous tumors, without, however, exerting any influence on the diathesis.

Sarsaparilla for generations has had a high reputation in scrofulous diseases. There is, nevertheless, a wide diversity of opinion about it, many careful observers rejecting it as of no value whatever.

Stillingia has long been a popular remedy in the various forms of scrofula. In children with enlarged cervical glands, muco-purulent discharge from the nose, tumid abdomen, pasty complexion, scrofulides on the skin, and white stools, its steady use will be found very serviceable. It is best given in fluid extract, dose gtt. x–xx, thrice daily, after eating, to a child.

Sulphur formerly enjoyed a good reputation in the treatment of scrofula, but it has fallen into disuse. Attention has lately been called to it as a valuable remedy.

740. ℞. Sulphuris ℈ij–iv.
Syrupi, f.℥j.
Aquæ, f.℥vij. M.

Two tablespoonfuls, once or twice a day, in a tumblerful of milk.

Taraxacum. Dr. Wm. H. Byford, of Chicago, in a report on scrofula, (*Trans. Am. Med. Association*, 1855,) says that taraxacum, of all the vegetable alteratives, is the most efficacious in removing scrofulous indigestion in both children and adults. It should not be given by grains, but as much as the stomach will bear.

Tayuya has had considerable testimony, as an anti-scrofulous agent, from Italian physicians.

Vieiria, a bitter principle from the bark of the royal *Remigia ferruginea*, has been introduced recently in the treatment of scrofula. It appears to be at least an efficient tonic in such cases.

Zinci Iodidum has been used externally in enlarged lymphatic glands.

741. ℞. Zinci iodidi, ℥j.
Adipis, ℥j. M.

DIETETIC AND HYGIENIC REMEDIES.

The Grape Cure. In all the dyscrasiæ, but especially in scrofula, the *grape cure* is popular in France, Switzerland and Southern Germany. It consists of confining the diet exclusively to fresh ripe grapes, and is necessarily limited to the fall season.

The first meal is taken in the house in the early morning, and is made up of from one to six pounds of grapes. The others, at noon and at evening, should be less in quantity, and eaten in the vineyard; and finally a moderate amount may be consumed before retiring.

Bread and water are usually allowed in addition, but no other food or drink whatever; and this strict diet must be persevered in from four to six weeks. Very favorable results are reported from it, both in cases of scrofulosis where there is an unhealthy deposit of fat, and those where there are emaciation and swollen or suppurated glands.

There would be no difficulty in carrying it out in many districts of this country, where the vine flourishes abundantly.

Malt Extract. This is a very valuable adjuvant in the treatment of scrofula and tubercle. It improves the nutrition and often arrests the progress of the disease. It accomplishes the good results of stimulants without their injurious period of reaction and other baneful effects.

Mineral Waters. The most appropriate mineral waters in scrofula are the *saline* group, especially those containing iodine. In England, Cheltenham; in Germany, Kreuznach, Kissingen, Hombourg and Wiesbaden; in France, Balaruc, Bourbonne and Lamotte, are especially celebrated in strumous complaints. In America, the St. Catherine's Wells, Canada; Spring Lake Well, Michigan; the Saratoga waters and the Ballston Spa waters, are similar in composition and use.

Sea-water, which is closely akin to the saline mineral waters, will be spoken of separately.

The Sulphur Waters have by some physicians been heartily recommended, by others as much condemned, in strumous affections. According to the authors of the *Dictionnaire des Eaux Minerales* (Paris, 1860,) their employment will generally give very satisfactory results if confined to those cases where the disease manifests itself by superficial lesions of the skin, and by obstinate catarrhal affections, strumous ozæna, and the like. They are distinctly contra-indicated where inflammatory excitement or congestion is present.

For particular cases, where anæmia and impoverishment of the blood are marked symptoms, the *chalybeate* waters are useful.

In all cases the use of these agents must be long continued; and it is better to take them at the springs, as patients more willingly submit themselves to proper regimen there than at home.

Sea-air and Water. Few agents exert a more happy influence on the strumous diathesis than sea-water. In France a large institution has been established at Berck, where annually several hundred scrofulous children are sent for treatment. In its earlier years, from sixty to seventy per cent. were cured, but since experience has taught a more just discrimination of cases, yet more favorable reports have been made.

According to Dr. BERGERON (*Annales d' Hygiène Publique*, 1868,) the marine treatment is especially indicated where there are ganglionic enlargements not yet passed to the state of suppuration, cold abscesses, gummata, or white swellings of the joints.

Hardened cervical glands not unfrequently are completely resolved.

On the other hand, where the prominent symptoms are chronic strumous blepharitis and ophthalmia, scrofulides of the skin, otorrhœas, deep-seated caries of the bone, and open, obstinate sores, this method of treatment produces little benefit.

The plan adopted is to have the patients bathe twice daily in sea-water, and to drink a small quantity daily, moderate exercise in the open air, substantial food and warm clothing. No drugs whatever are given, and in favorable weather patients are advised to spend most of the time out of doors. The treatment should be continued from three to fifteen months.

XVI. DISEASES OF THE SKIN.

General Therapeutics of Skin Diseases—Acne—Alopecia—Eczema—Erythema—Herpes—Impetigo—Lepra—Lichen—Phtheiriasis (Pediculi)—Pityriasis (Seborrhea)—Prurigo and Pruritus—Psoriasis—Rosacea—Scabies—Sycosis (Mentagra, Barber's Itch)—Tinea (Ringworm)—Urticaria.

GENERAL THERAPEUTICS OF SKIN DISEASES.

DR. LOUIS A. DUHRING, OF PHILADELPHIA.*

Both constitutional and local remedies are generally necessary in the treatment of diseases of the skin.

Among *constitutional* measures, much is gained by a well-ordered *hygiene*, out-door exercise, cleanliness, and often by change of climate. A well-regulated and suitable *diet* must be looked to. Of medicinal agents, *cod-liver oil* is especially useful when the general health is run down. The dose should always be liberal—from a teaspoonful to a half-ounce or more. The preparations of *iron* are given with particular benefit in diseases dependent upon chlorosis, and in exudative diseases connected with general impoverishment, as in certain forms of eczema, psoriasis and the like. *Quinine* is of particular value in the neurosis, (dermatalgia, pruritus,) and in other diseases complicated by a well-defined nervous element. *Arsenic* is the most valuable of all remedies in the treatment of a number of skin diseases, especially in those involving the most superficial part of the skin. Its action is slow, weeks and months being required to produce its effects. It should never be given in the acute inflammatory stage of any disease of the skin, nor where there is great heat, burning, intense itching or rapid cell change. The most desirable form for ordinary use is Fowler's solution. It may also be given in pill form, as in the "Asiatic pill," a modified and improved formula of which is:

* *A Treatise on Diseases of the Skin.* 2d Ed. Phila., 1881.

742. ℞.	Acidi arseniosi,		gr. ij.	
	Piperis nigri,			
	Pulveris glycyrrhizæ,	āā	gr. xxxij.	
	Mucilagini,		q. s.	M.

Make thirty-two pills. One to be taken three times a day directly after meals.

The liquor potassii arsenitis is best given combined with a bitter tincture, or with the wine of iron, as there is less likelihood of gastric or intestinal derangement.

Phosphorus has been used with success in psoriasis. It is best administered in the form of phosphorated oil, enclosed in capsules, the dose being about $^1/_{50}$ of a grain of the phosphorus. *Tar* and *carbolic acid* are at times employed internally in psoriasis with good results. The tar should always be ordered in capsules. The internal use of *mercurials* is invaluable in skin diseases of a syphilitic nature. *Iodide of potassium* finds its chief use in scrofuloderma, lupus and the late syphilodermata.

DR. TILBURY FOX, OF LONDON.

This writer, speaking of skin diseases of general character, remarks, as regards *local* remedies, there are three main rules to be observed, viz.:

1. Whenever active hyperæmia is present, be the disease what it may, applications of a stimulating nature should not be used, but the treatment should be essentially *soothing*, otherwise the inflammatory symptoms will be increased and the disease spread.

2. The action upon the skin of an external irritant—as scratching—should be prevented, and the air excluded from inflamed or excoriated surfaces, especially by oil-packing and otherwise.

3. Not until the stage of active hyperæmia has passed should astringents, stimulating applications or revulsives be employed. These, and absorbents, are to be reserved for the stages of vascular sluggishness and inflammatory induration and thickening.

As regards internal or general remedies, it is proposed to indicate below, in as practical and concise a form as possible, the conditions which should be taken into consideration in framing the treatment of such diseases as erythema, intertrigo, urticaria, eczema, lichen, prurigo, pemphigus, hydroa, ecthyma, furunculus, pityriasis rubra and psoriasis; and inflammatory conditions of the glands and hair follicles, as acne, dysidrosis and sycosis, which are analogous to, and only differ in regard to

their anatomical seat from those preceding. This short sketch or chart, inasmuch as it applies to the bulk of skin diseases, should be used regularly in determining the treatment, which must necessarily vary with the different combinations of the influencing agencies referred to. These conditions are:

A Syphilitic Taint, which tends to induce induration, from the presence of syphilitic tissue; or ulceration, cachexia, and general debility in eczema, psoriasis, pemphigus, ecthyma, acne and intertrigo (infants.)

Constipation, which causes dyspepsia, liver torpor and retention of excreta, and occurs in all forms of skin diseases.

Debility, including anæmia, which retards recovery from want of recuperative power in the system, all functions sharing in the debility. It is especially operative in furunculus, eczema, pityriasis rubra, pemphigus and ecthyma.

Diabetes, which increases any inflammatory condition, favors phlegmonous inflammation, and leads to freer development of disease and to chronicity. Its influence is often seen in eczema, psoriasis, intertrigo in adults, furunculus and anthrax.

Dyspepsia, which induces debility, leads to liver disturbance, impurifies the blood and increases hyperæmia by reflex action, as in acne, eczema, urticaria and sycosis.

Errors of Diet, which introduce special irritative substances into the blood, cause dyspepsia, lead to accumulation of nitrogenous matters in the system, to liver disorder, etc., and complicate all forms of inflammatory eruptions without exception.

Gouty and Rheumatic Diseases, which cause accumulation of uric and lactic acids and allied compounds in the blood, and give an inflammatory character to disease, as seen in eczema, psoriasis, lichen, ecthyma, sycosis and urticaria.

Lack of Hygiene, which disposes to torpor of the skin, and favors the occurrence of morbid action and disease, as seen in acne and sycosis, eczema, intertrigo, and erythema especially.

Repression of the special normal eliminary functions, (skin and menstrual,) which throws the necessity of compensatory elimination on the skin, which may fail to respond, and so become diseased. In dependent parts this leads to increase of fluid tissues. It occurs in furunculus, ecthyma and eczema.

Retention of Excreta, from kidney, liver and bowel inactivity, which

gives the blood an irritative quality and aggravates hyperæmia in all inflammatory skin diseases. It also leads, in the case of kidney torpor, to increase of watery fluid in the tissues, as in eczema of the legs.

Strumous Diathesis, which imparts an unusual purulent character to eruptions, and favors the application of the connective tissues, as in eczema, psoriasis, acne and sycosis.

DIET IN SKIN DISEASES.

There are one or two observations to be made on this subject that may be of use in the management of these diseases:

First. A distinction must be made between the diet of the private and hospital patient. The latter often only requires to be well fed up, and his disease then speedily goes; the former, on the other hand, often needs to have a check put on the quantity and quality of his food.

Second. In children, skin diseases may arise directly from defective alimentation, as in the case of eczema; and it is frequently the case that the child, the subject of eczema, intertrigo or psoriasis, has not a sufficient supply of *milk*, either from excessive dilution or otherwise.

Third. The regulation of the diet, setting aside the question of quantity or quality, is, as a rule, needed not so much to directly influence the skin disease as certain states of the general health, which modify the particular disease present; for instance, to meet especially dyspeptic, gouty and rheumatic conditions, but particularly the former.

In dyspepsia in connection with eczema, acne, psoriasis or congestion of the face, it is advisable, especially if the urine be very acid, to avoid sugar, tea, coffee, alcoholics, beer, raw vegetable matter, with unripe or uncooked fruit, veal, pork, seasoned dishes, pastry and the coarser kinds of vegetables, but especially all articles whose use is followed by heat or flushing of the face, and by flatulence and the like. Milk, the common meats, a light kind of bread and some very light wine should be the diet of dyspeptic patients whose skins are at all in a state of irritation. In very many cases the stomach is at fault at the outset, and a careful regulation of the diet is of the utmost importance as an aid to the other means adopted to correct faults in other parts of the system.

In gouty subjects much the same line is to be pursued. As regards

stimulants, hock, a good light claret, or Moselle even, but not the sparkling, or whisky in Vals water, are the best beverages.

In strumous subjects, the diet should consist of as much fatty matter as possible.

Fourth. In children who suffer from ringworm, it is desirable to give as much fatty matter as possible, by means of milk, cream, eggs, and fat meat, if they can be got to eat it.

Fifth. In syphilis, the greatest care should be taken to avoid anything beyond the most moderate use of stimulants; their abuse in this disease is a source of the greatest aggravation.

Sixth. In all cases in which the onset or early stage of a skin disease is accompanied by febrile disturbance, however slight, or in which the disease is very hyperæmic, stimulants should be avoided, and the plainest and simplest diet ordered. In marked cases of this kind, a milk diet for a while is often found to be very beneficial.

Seventh. In some cases in which the skin is hyperæmic, this condition is much increased by the indigestion of food, especially if dyspepsia exist, in consequence of the sympathy existing between the stomach and the skin of the part affected. This state of things is especially marked in such diseases as acne, congestion of the face and non-parasitic sycosis. Stimulants must be avoided, except they be diluted with some alkaline water; the use of a diet appropriate to the dyspepsia must be rigorously enforced.

Eighth. It is said that psoriasis requires an ample meat diet; but the patient must be dieted, and not his disease—*i. e.*, the diet should be plain and nutritious, and adapted to the constitutional peculiarities of the individual, according to circumstances.

Ninth. In all cases where a skin diseases has become chronic, and where there is debility, the patient should be allowed a full, unstimulating diet.

ARSENIC IN SKIN DISEASES.

DR. L. DUNCAN BULKLEY, OF NEW YORK.

According to this author, arsenic is valuable in chronic rheumatism; hence it is useful in arthritic eruptions. It is serviceable in certain neuroses, as chorea and neuralgia; therefore in skin diseases with neurotic elements; and it possesses anti-malarial properties, and is consequently serviceable in diseases of the skin showing periodic symptoms,

as intermittent urticaria, etc.; likewise in patients with other skin diseases who have been exposed to miasmatic influence.

Arsenic is certainly also valuable in psoriasis, eczema, pemphigus, acne and lichen, in proper cases, and when due regard is paid to the secretory organs, and to diet and other elements of general health; of less certain value in lupus, ichthyosis, sycosis, verruca, and epitheliomatous and cancerous diseases. It is absolutely useless or harmful in the syphilodermata, the animal and vegetable parasitic diseases, (except in rare cases,) in elephantiasis græcorum and arabum, in pupura, true prurigo, herpes zoster, scleroderma, molluscum contagiosum and fibrosum, keloid, vitiligo, nævus, etc.

In reference to its administration, it is quite sure that it is eliminated very rapidly, chiefly by the bowels and kidneys, so that the urine shows evidence of it in a few hours; no trace of it can be found on careful analysis of the body after death, two weeks after the last dose of arsenic. The drug, therefore, does not accumulate in the system, and no fear of this need be entertained; but when it is administered in increasing doses, absorption may be hindered, and when the dose becomes very large, active absorption of a large dose may give rise to a suspicion of cumulative action.

The first symptom of a full dose of arsenic, in a very large share of cases, is a fullness about the face and eyes, and conjunctival irritation and tenderness. This need not be exceeded, but may often be kept up with advantage to a slight degree till the disease yields. Before any harm is done by the arsenic, either this or a slight nausea or diarrhœa manifests itself. It should always be given with or just after meals. It is often best to give it alone, or with a small amount of bitter infusion. The bowels should be first well purged, and an occasional laxative will both assist the action of the drug and prevent or modify some of its unpleasant effects. If the urine becomes loaded and the tongue coated, it is best to stop the medicine for a short time and give diuretics; some of these disturbances can be prevented by combining an alkali, as acetate of potassa, carbonate of soda, or aromatic spirits of ammonia, with the arsenic.

In regard to the most serviceable forms in which to use arsenic, they are named in the order of their value: Solution of the chloride of arsenic, solution of the arseniate of potassa, that of the arseniate of soda, and the arseniates of ammonia, arsenious acid, iodide of arsenic,

and the arseniates of iron and quinia; of as yet untried efficacy, solution of the chloro-phosphide of arsenic and arseniate of antimony.

The dose of arsenic, small at first, is to be increased slowly until some of its physiological effects are manifested or the disease yields; it may then be somewhat diminished.

It is very important that arsenic be taken very regularly and persistently, and always under the supervision and frequent inspection of the physician.

Frequently, arsenious acid is better tolerated when combined with opium, as:

743. ℞.	Acidi arseniosi,	gr. j.	
	Pulveris opii,	gr. iv.	M.

Make sixteen pills.

NELIGAN recommends highly what he calls the *iodurated solution of the iodide of potassium and arsenic*, after the following formula:

744. ℞.	Liquoris potassæ arsenitis,	♏lxxx.	
	Potassii iodidi,	gr. xvj.	
	Iodidi puri,	gr. iv.	
	Syrupi florum aurantium,	f.℥ ij.	M.

Each f.℥ of this contains ♏v of Fowler's solution.

In skin diseases of a nervous type the following formula, after ROUTH, promises well:

745. ℞.	Acidi arseniosi,	gr. j.	
	Phosphori,	gr. ¼.	
	Acidi hydrochlorici diluti,	f.℥ j.	M.

For an adult, ♏xv–xx thrice daily.

The only local application of arsenic which is justifiable is either one where the strength is so weak, and the extent of its use so small, that there is no danger from absorption, which may occur when not expected, or one of such a strength as to kill the adjoining tissue at once, and so prevent absorption, as is the case with Marsden's mucilage. (Index.)

MR. THOMAS HUNT, F. R. C. S., LONDON.

Mr. HUNT has urged the claims of arsenic in skin diseases more strongly than any other writer; and as he claims that everything depends upon the particular mode of administering it, his directions should be closely scanned. He remarks that there are few medicines

less likely to do harm than arsenic when administered in the manner about to be described. *Its curative powers seem to reside alone in doses too small to be mischievous.* It is impossible to push it. But a patient administration of small doses under favorable circumstances, for weeks, months or years together, will be found to exercise an almost omnipotent influence over the cutaneous diseases to which it is adapted.

The numerous failures of arsenic may be traced to one or more of the following sources: 1. The syphilitic character of the cutaneous disease; mercury is then wanted; arsenic has no influence whatever. 2. The administration of arsenic during the inflammatory or febrile stage of cutaneous disease, under which circumstances it rarely fails to increase the inflammation, and never does any good. 3. Its administration on an empty stomach, thus exciting gastric irritation. 4. Too large doses and too long intervals between the doses. 5. The serious error of directing *gradually increasing doses.* The proper method is to increase the dose one-fifth, once or twice a month, if after a fortnight it produces no sensible effect whatever. So soon as it begins to assert itself, the full dose is arrived at, and it should be continued without further increase. Five minims of Fowler's solution thrice daily is sufficient to begin with, and this may be reduced as occasion may require. It should be mixed with a little water, or with the beverage drank with or after meals. Children above five years old will bear nearly as large a dose as adults.

A full dose being first administered at regular intervals, in a few days (or possibly weeks) a pricking sensation is felt in the tarsi, and the conjunctiva becomes slightly inflamed. *At this crisis the disease is brought under arrest, and generally from this period appears to be shorn of its strength.* The dose may now be reduced, and in some cases a very small dose, taken with exact regularity, will suffice to keep the eyelids slightly tender and the skin healing, until at length even the disposition to disease appears to die away under the influence of the medicine. The patient should be examined at first once a week. The medicine must not be entirely abandoned *until weeks or months after all disposition to morbid action appears to have subsided.* The arsenical course should be protracted, in reduced doses, for about as many *months* after the final disappearance of the disease as it had existed *years* before. This will prove the best security against a relapse. In plethoric and inflammatory subjects the disease will be liable to relapse, unless the diet be so regulated as to keep the system always free from in-

creased vascular action. In some cases stimulants must be entirely abandoned; in others, a sparing allowance of animal food appears to be essential to the preservation of health, and, in a few, vegetable diet for life. Cutaneous diseases are sometimes complicated with diarrhœa, dyspepsia or general irritability of the stomach. Arsenic, in small doses, will be found to soothe the bowels (the *pulse being quiet*) in proportion as it allays the irritability of the skin. This assertion of our author, when first made, was treated with ridicule; but after twenty years' further observation he repeats it.

Arsenic, if rightly used, is adapted to the treatment of six out of every seven cases of chronic skin disease the physician is called upon to relieve. More than this, the diseases which are curable by arsenic are also absolutely incurable without it, try what you will.

Our author gives the following specific directions for the use of Fowler's solution:

First. It should be given in divided doses, three doses in twenty-four hours, simply to avoid an unnecessarily large dose.

Second. It should be diluted with pure water, or if the case require the influence of antimony, the following should be ordered:

746. ℞. Liquoris potassæ arsenitis, f.℥ij.
Vini antimonii, f.℥xiv.
Aquæ, f.℥j. M.
A teaspoonful, diluted, three times a day.

Third. This dose should be taken with or immediately after a meal, in order that, being mixed with a patient's food, it may find a ready entrance to the blood, and that the bare possibility of its irritating the mucous membrane of the stomach or bowels may be avoided. Not that there is any danger of mischief, but the patient aware that he is taking arsenic, may thus be disabused of all fanciful or imaginary sufferings of this kind.

Fourth. It should be clearly understood that arsenic acts very slowly, and therefore it is best to begin with an average dose, say five minims of Fowler's solution, and this should be increased, not day by day, but after two, three or four weeks. It should always be freshly prepared.

MERCURY IN SKIN DISEASES.

DR. R. LIVEING, LONDON.

This writer attaches much importance to mercurial plaster in many skin diseases:

747. ℞. Hydrargyri, ℥ iij.
Olei terebinthinæ, f. ℥ iss.
Emplastri plumbi, ℥ xij. M.

Of this he says it is most commonly used in the treatment of syphilides. In hard chancre it is the best local application, and can be conveniently used when spread on linen and wound round the penis. It is very useful in enlargement of the inguinal glands previous to the formation of an abscess. It is indicated in squamous and ulcerated forms of cutaneous syphilides, when its value may be shown by covering one portion of the affected skin with the plaster, and leaving the other exposed, when it will be found that the former soonest recovers. It is very advantageously applied to the condylomata of children, and in psoriasis. It is also useful in chronic, non-syphilitic skin affections especially sycosis, acne indurata and lichen. Of other mercurial preparations, he especially commends the following:

UNGUENTUM HYDRARGYRI AMMONIATI COMPOSITUM.

748. ℞. Hydrargyri ammoniati,
Zinci oxidi, āā gr. xl.
Hydrargyri oxidi rubri, gr. v.
Unguenti simplicis, ℥ j. M.

Used in chronic skin diseases.

UNGUENTUM HYDRARGYRI CINEREI.

749. ℞. Hydrargyri oxidi cinerei, gr. xx.
Unguenti cetacei, ℥ ss. M.

Used in syphilitic and other ulcerations of the Schneiderian membrane; applied to the nose, night and morning, with a pencil.

UNGUENTUM HYDRARGYRI CUM PLUMBO.

750. ℞. Plumbi acetatis, gr. x.
Zinci oxidi,
Hydrargyri subchloridi,
Unguenti hydrargyri nitratis, āā gr. xx.
Adipis recentis, ℥ ss.
Olei palmæ purificati, f. ℥ ss. M.

An ointment largely used at the Skin Hospital, Blackfriars road, in the treatment of eczema capitis, etc.

UNGUENTUM HYDRARGYRI CUM SULPHURE.

751. ℞. Hydrargyri oxidi rubri, gr. iij.
Hydrargyri ammoniati, gr. xl.
Sulphuris sublimati, gr. xx.
Unguenti simplicis, ℥j. M.

Used in parasitic diseases, acne, etc.

DR. L. CANE, OF LONDON.

In some obstinate cases of ringworm of the scalp, this writer (*Lancet*, August, 1873,) commends as the best of the mercurials the *oleate of mercury*. Other writers also emphasize its value in various skin affections. Dr. CANE states that the advantages which oleate of mercury seems to possess over other remedies are:

1. It is a *certain remedy*, if carefully applied.

2. It *produces no staining* or injury of the skin. In cases where the disease appears on the face, it is of great importance to avoid any disfigurement or staining.

3. It is *painless* in its application. This is not the case with the ordinary strong parasticides, most of which produce vesication, etc.

4. It *readily penetrates* into the sebaceous glands, hair follicles, and even into the hairs themselves, the mercury being in a state of solution in an oily medium, and it is therefore much more likely to destroy the fungus than the spirituous or aqueous solution of mercury, etc. This penetrating power of the oleate may be increased by adding a small quantity of ether (one part to eight) to it.

In very sensitive skins the irritation sometimes produced by it may be avoided by using a weaker solution, (five per cent.,) and by applying it with a camel's-hair brush.

As the oleate of mercury is not officinal, the following formula—that used at the University College Hospital, London—is added:

752. ℞. Hydrargyri peroxidi præcipitati, ʒj.
Acidi oleici, f.ʒx. M.

Agitate the acid in a mortar, add the peroxide gradually, triturating frequently during twenty-four hours, until it is dissolved, and a viscid solution is formed.

ON PARASITICIDES.

DR. H. S. PURDON, LONDON.

Parasiticides may be divided into those derived from the vegetable, animal and mineral kingdoms; but without going deeply into the subject, it may be briefly stated that the most valuable obtained from the first are *iodine, creosote, carbolic acid* and *acetic acid.* The last three check the development of spores; creosote, according to Mr. BEAUCHAMP, although it allows the mycelium to form, prevents the spores from germinating. From the second, the only remedy in use is *cantharides,* which, when used in the form of the liniment of the *British Pharmacopœia,* (about the strength of the cantharidal collodion, U. S. P.,) quickly cuts short the disease, especially tinea tonsurans, circinnata and alopecia acuta; it likewise stimulates the affected skin to take on a more healthy action. From the mineral kingdom we have *mercury,* especially the bichloride, chromate, nitrate and white precipitate; *sulphur, borax,* etc. The first has a well-earned reputation, and the *chromate of mercury* our author has carefully tried in tinea versicolor and some other forms of vegetable parasitic diseases. An objection to its use is that it does not mix with water; indeed, it is insoluble in any fluid, but may be used as an ointment. He has added glycerine and rectified spirits, so as to endeavor to suspend it in solution, but without success. The only way to manage is to shake the bottle before applying it. A useful auxiliary to the above remedies is epilation, which should be performed in inveterate cases. Of course, constitutional treatment is of the utmost importance, *quinine* being our chief remedy, which substance, it is asserted, has the property of destroying vegetable growth. The tincture is the best preparation for children.

No doubt the growth and development of a fungus is favored by some peculiar condition of the system; for example, tinea versicolor flourishes and is common on the bodies of consumptive patients.

In all cases of vegetable parasitic diseases, our author prescribes constitutional as well as local treatment. *Cod liver oil, pancreatine,* the *syrup of the iodide of iron, quinine,* and, in hospital practice, *salicine,* are the remedies relied on. The therapeutical fact should be remembered that parasitical affections are rarely, if ever, "cured" by destroying the parasite; but they can be eradicated by administering

appropriate tonics and alteratives, which are capable of correcting the blood dyscrasia, which tends to keep up the disease.

The following formulæ for parasiticides are recommended:

DR. MALASSEZ.

753. ℞. Hydrargyri sulphatis flavæ, gr. xv
Butyri cocoæ,
Olei ricini,
Olei amygdalæ dulcis, āā ʒ v. M.
A mild parasitic ointment. Apply twice daily in pityriasis, tinea, sycosis, etc

DR. R. LIVEING.

LOTIO ACIDI SULPHUROSI.

754. ℞. Acidi sulphurosi,
Aquæ destillatæ, āā f.ʒ iv. M.
Used in all parasitic skin diseases.

LOTIO CALCII SULPHURETI.

755. ℞. Calcis vivæ, ℔ ½.
Sulphuris, ℔ ss.
Coque cum aqua, O v.
Evaporetur, ad Oiij. M.
Used in scabies and other parasitic diseases.

LOTIO HYDRARGYRI PERCHLORIDI.

756. ℞. Hydrargyri perchloridi, gr. x.
Bismuthi subnitratis, gr. cxx
Spiritûs camphoræ, f.ʒ ss.
Aquæ, Oj. M.
Used in parasitic diseases and acne.

UNGUENTUM CREOSOTI.

757. ℞. Creosoti, ♏ vj.
Unguen. hydrargyri gr. xxx.
Hydrargyri oxidi rubri levigati, gr. xx.
Adipis recentis, ʒ j. M.
Used in parasitic and other skin diseases.

J. M. DA COSTA, M. D. PHILADELPHIA.

758. ℞. Calcis hyposulphitis,
Sodii hyposulphitis, āā ʒ ss.
Aquæ, f.ʒ iv M.
A useful lotion for *sycosis menti.*

The following is useful:

VESICATING, VEGETABLE PARASITICIDES.

759. ℞. Tincturæ iodinii compositæ, f.℥j.
Iodinii, gr. x.
Potassii iodidi, gr. xv. M.
Used in chronic stages of vegetable parasitic diseases.

ACNE.

HENRY G. PIFFARD, M. D., OF NEW YORK.

In *acne sebacea* this writer commends a weak solution of tannin; or a powder containing tannin ℥j to rice powder ℥j; or touching the points with *tinctura ferri chloridi*. In *acne simplex* he has found the following lotion very useful:

760. ℞. Sulphuris sublimati,
Alcoholis,
Tincturæ lavendulæ compositæ,
Glycerinæ,
Aquæ comphoræ, āā ℥j. M.
Use as a lotion.

J. M. DA COSTA, M. D., PHILADELPHIA.

761. ℞. Acidi carbolici fluidi, ♏ xxx.
Glycerinæ, f.℥ij.
Cerati adipis, ℥vj. M.

Employed in the treatment of acne and other pustular skin affections, in some cases with signal effect. If it produces too much irritation in this strength, it may be diluted with fresh lard.

762. ℞. Liquoris potassæ arsenitis, f.℥j.
Extracti cascarillæ fluidi,
Tincturæ rhei dulcis, āā f.℥x. M.
A teaspoonful thrice daily. Locally, iodide of sulphur ointment (gr. xv to adipis ℥j) twice a day, in chronic cases.

In simpler cases try first a very mild ointment. None is more soothing than one of lard:

763. ℞. Liquoris plumbi subacetatis, ♏ xx.
Glycerinæ, f.℥j.
Cerati simplicis, ℥ vij. M.
To be rubbed on thoroughly, morning and evening.

DR. TILBURY FOX, OF LONDON.

In the treatment of acne it is necessary, first of all, to insure cleanliness; secondly, to remove any cause of debility present, correct menstrual deviations, cure dyspepsia, etc., and especially to prevent constipation. These preliminary cares are *sine qua non* to success. Then, in the simpler cases, which exhibit little inflammatory action, recourse may be had to friction and gentle stimulation; borax, soda and calamine lotions, or the following, will suffice:

764. ℞. Hydrargyri chloridi corrosivi, gr. ij.
Emulsionis amygdalæ amaræ, f.℥ viij. M.

In the severer forms much more remains to be done. The general condition of the health must be improved, and whatever special indications are present be fulfilled. Locally, if there be much inflammation, warm poultices, hot vapor douches and warm lead lotions are called for. When these have allayed the irritation, absorbents may be used—oxide of zinc lotion or the oxide of zinc and glycerine. Our author generally prescribes:

765. ℞. Hydrargyri chloridi corrosivi, gr. ij.
Sodii biboratis, ℥ ss.
Glycerinæ, f.℥j.
Aquæ, f.℥ vij. M.
To be frequently used.

PROF. HEBRA, OF VIENNA.

This author treats acne as follows: He gives vapor douches to the face, applies soft soap, or

766. ℞. Potassæ causticæ, ℥j.
Aquæ, Oj. M.

In other cases he washes the face with soft soap, and at night applies a paste made as follows:

767. ℞. Sulphuris, ℥j.
Alcoholis, f.℥j. M.
To be painted on by means of a camel's-hair pencil. This is removed in the morning by means of soap. Cocoa butter is kept on all day.

He sometimes uses:

768. ℞. Hydrargyri chloridi corrosivi, gr. v.
Alcoholis, f.℥j. M.
To be applied with a compress for two hours.

At other times he applies, two or three times a day:

769. ℞. Hydrargyri chloridi corrosivi, gr. j.
Tincturæ benzoini, f.℥j.
Aquæ, f.℥vj. M.

DR. LOUIS A. DUHRING, OF PHILADELPHIA.*

Acne is a functional affection, and treatment must be adopted to correct the general disorder. Derangement of the stomach and bowels will be at the bottom of a vast number of cases. When the tongue is furrowed and the alimentary canal irregular in action, the following acid aperient mixture will frequently give excellent results:

770. ℞. Magnesii sulphatis, ℥iss.
Ferri sulphatis, gr. xvj.
Acidi sulphurici, f.℥ij.
Aquam, q. s. ad f.℥viij. M.
A tablespoonful in a goblet of water, half an hour before breakfast.

The natural laxative mineral waters are also useful. If vegetable cathartics are preferred, pills of aloes and rhubarb are the most useful.

Iron and cod-liver oil are frequently called for in the acne of anæmic young persons. The mineral acids are of value in bringing up the general health. In the papular variety and where the lesions are imperfectly developed, *arsenic* is of decided service in tonic doses, *liquoris potassæ arsenitis*, gtt. j–iij. *Glycerine*, in tablespoonful doses, two or three times a day, has been extolled in the punctate variety. Stimulating drinks and all indigestible food should be prohibited.

Locally, in the vast majority of cases, stimulating applications are demanded. *Sulphur* may be ordered as follows, with good results in many cases:

771. ℞. Sulphuris sublimati, ℥j.
Glycerinæ, f.℥j.
Cerati simplicis, ℥j.
Olei rosæ, gtt. iij. M.
For an ointment. To be thoroughly rubbed into the skin at night.

* *A Treatise on Diseases of the Skin.* Phila., 1881.

Several mercurial preparations, the biniodide, (gr. v–x to ℥j,) the corrosive chloride, (gr. ¼–ij to ℥j,) the protiodide, (gr. v–xv to ℥j,) and in severe cases of indurated acne, the emplastrum hydrargyri, are valuable applications.

For Acne Rosacea, see Rosacea.

DR. L. DUNCAN BULKLEY, OF NEW YORK.

In cases of the simple and punctate forms of acne, this practitioner frequently commences the treatment with *acetate of potassium* internally, gr. xv thrice daily, well diluted, followed by tincture of the muriate of iron as soon as the new elements of disease cease to form. Where the skin is thick and doughy, he has had good results from administering *glycerine*, with citrate of iron and quinia dissolved in it. He has found some cases do well under citrine ointment, diluted three times, and well rubbed in at night. The first effect is stimulating, and the patient appears worse, when the treatment is to be suspended and returned to in a few days. He has also prescribed very largely the following lotion:

772. ℞. Sulphuris loti, ℥j.
Etheris sulphurici, f.℥iv.
Alcoholis, f.℥iijss. M.
For a lotion.

Dr. SYDNEY RINGER and others have used with success the *sulphide of calcium*, gr. $^1/_{10}$ to $^1/_2$, four times daily.

ALOPECIA.

DR. L. DUNCAN BULKLEY, NEW YORK.

773. ℞. Tincturæ capsici,
Tincturæ cantharidis, āā f.℥ss.
Tincturæ nucis vomicæ, f.℥ij.
Glycerinæ, f.℥ss.
Aquam, ad f.℥iv. M.
Use as a lotion, to be well rubbed in, night and morning, in *alopecia areata*.

Dr. BULKLEY does not believe this is a parasitic disease. The prognosis is fair, but there is a tendency to relapse.

When the baldness is the result of *seborrhœa*, as shown by the abundant dandruff, use:

774. ℞. Tincturæ cantharidis, f.ʒj.
Unguenti hydrargyri nitratis, ʒij.
Unguenti aquæ rosarum, ʒvj.
Olei amygdalæ amaræ, gtt. ij. M.

As a stimulant in the loss of hair after febrile disease, simple debility or syphilis, the following is serviceable:

775. ℞. Tincturæ cantharidis, f.ʒij.
Tincturæ capsici,
Olei ricini, āā f.ʒss.
Aquæ coloniensis, ad f.ʒiv. M.

Rub on the scalp with a bit of flannel, night and morning. The cantharides should be increased till a slight tingling follows the application.

DR. BOUCHUT, PARIS.

776. ℞. Zinci chloridi, ʒijss.
Beef marrow, ʒj. M.

The head is shaved, and frictions made morning and evening with this pomade until a minute purulent eruption is produced. The frictions are then stopped, to be re-commenced when the eruption has disappeared.

777. ℞. Tincturæ cantharidis, f.ʒj.
Olei ricini, f.ʒss.
Purified beef marrow, ʒj.
Spiritûs amygdalæ amaræ,
Spiritûs limonis, āā gtt. xij. M.

To be rubbed, morning and evening, on the scalp.

778. ℞. Olei tiglii, ♏ xv-xxx.
Olei amygdalæ dulcis, ad f.ʒss. M.

Shave the head and rub this pomade on the scalp twice a day, until an eruption is produced.

779. ℞. Tincturæ iodinii, f.ʒiss.
Extracti hyoscyami, ℈iv.
Beef marrow, ʒj.
Spiritus bergamii, q. s. M.

To be rubbed on the scalp, morning and evening, when falling of the hair takes place after a confinement or a serious illness. In addition, preparations of iron, bark and, in some cases, of arsenic, are to be given internally.

MR. ERASMUS WILSON, LONDON.

780. ℞. Tincturæ cantharidis, f.ʒiss.
Spiritûs rosmarini,
Spiritûs lavandulæ, āā gtt. x.
Eau de Cologne, f.ʒiss. M.

Rub the scalp gently with a piece of flannel dipped in this mixture, in order to stimulate the growth of the hair.

781. ℞. Tincturæ cantharidis, f.℥j–ij.
Cupri acetatis, gr. ij.
Olei amygdalæ dulcis,
Olei ricini, āā f.℥vj.
Spiritus lavandulæ, to perfume, q. s. M.

Apply, every evening, a small quantity of this liniment to the roots of the hair, in order to prevent it from falling, and to stimulate its growth.

For ordinary falling or thinning of the hair, of the various stimulants, Mr. WILSON prefers *ammonia:*

782. ℞. Liquoris ammoniæ fortis,
Olei amygdalarum,
Chloroformi, āā f.℥ss.
Alcoholis, f.℥ijss.
Olei limonis, f.℥ss. M.

The instructions for the use of this lotion are that it should be dabbed upon the skin of the head after thorough friction with the hair-brush. No doubt there are cases in which this lotion must be used with caution. It may be diluted, if necessary; it may be applied sparingly or abundantly; and it may be used daily or otherwise.

There are cases in which a less stimulating and even a refrigerating lotion may be required, and where an objection may be raised to the quantity of oil contained in the former lotion; in which cases a lotion of borax and glycerine, two drachms of each to eight ounces of distilled water, is cooling and refreshing. This lotion allays dryness of the skin, removes scurf and subdues irritability.

In cases of complete baldness, and in *alopecia areata*, he prescribes:

783. ℞. Linimenti camphoræ,
Linimenti ammoniæ,
Linimenti chloroformi,
Linimenti aconiti, āā partes equales. M.

This is to be well rubbed into the bare places daily, or even twice a day, so as to produce a moderate amount of stimulation. In cases of ophiasis, due to neuralgia of the cutaneous nerves of the scalp, this liniment is very valuable. In other cases the liniment of iodide may be painted on the bare patches daily, or they may be stimulated by friction with the ointment of cantharides or any other powerful stimulant. Painting the discs of area with the epispastic fluid of the Pharmacopœia may also occasionally be resorted to, or the epispastic fluid may be diluted with spirits of camphor. The intention of all these local remedies is to stimulate without setting up irritation, to increase the energy of circulation and innervation of the part, and, in some in-

stances, to abstract the excess of fluids from the tissues of the skin, by inducing exudation; but these results must be accomplished, as far as possible, without pain and without severity.

The constitutional treatment of alopecia should consist in the adjustment and regulation of the functions of digestion and assimilation, and where no other special conditions are to be fulfilled, the adoption of a tonic regimen and the administration of tonic remedies. Of these last, arsenic bears the palm, and may be advantageously prescribed in doses of two to four minims three times a day, directly after food, and in any convenient vehicle.

Alopecia Syphilitica will yield very readily to the treatment applicable to the parent disease—namely, iodide of potassium, with the local inunction of the nitric oxide of mercury ointment, diluted in the proportion of one part to three or four of benzoated lard or vaseline, or the use of a lotion of the perchloride of mercury.

ECZEMA.

DR. L. DUNCAN BULKLEY, NEW YORK.

This author states (*Transactions American Medical Association*, 1875,) that acute eczema can seldom be abated, and we must aim at a soothing treatment only. For this purpose he recommends lotions which on evaporating leave a finely-divided powder on the surface, *e.g.:*

784.	℞.	Zinci carbonatis,	ʒ ij–iv.
		Zinci oxidi,	ʒ j–ij.
		Glycerinæ,	f. ʒ ij.
		Liquoris picis alkalini,	f. ʒ j.
		Aquæ rosæ,	f. ʒ iv. M.

When exudation has ceased, ointments are useful, of which simple mutton suet is as good as any.

The *liquor picis alkalinus* mentioned above is praised by Dr. BULKLEY as a very valuable preparation in chronic eczema. The formula is:

785.	℞.	Picis liquidæ,	ʒ ij.
		Potassæ causticæ,	ʒ j.
		Aquæ destillatæ,	f. ʒ v. M.

Dissolve the stick potassa in the water, and then gradually add the solution to the tar, with rubbing in a mortar.

It may be applied diluted, undiluted or in an ointment. For constitutional treatment, alkalies and cod-liver oil are needed, but arsenic has been greatly overrated.

Dr. BULKLEY praises the use of *tannin* in ointment, ʒ j to ʒ j. He has also employed bismuth subnitrate in ointment, half a drachm or one drachm to an ounce; and with many skins it acts very much better than the zinc ointment. He has also returned, in a measure, to the employment of the old unguentum picis, or tar ointment, of the Pharmacopœia, diluted two, three or even more times, either with simple or rose ointment, or in combination with oxide of zinc ointment, and finds that it does not merit the neglect into which it appears to have fallen.

Baths at times render great service. As is well known, the application of simple water to eczematous skin does harm, and is to be avoided as far as possible; but the same does not hold true in regard to water medicated so as to offer a soothing element, by means of the carbonate of potash and soda, borax, acetate of potash, etc., combined with starch.

DR. LOUIS A. DUHRING, OF PHILADELPHIA.

This writer, in some remarks on *eczema rubrum*, says that in many cases local treatment alone is all-sufficient. In the earlier stages of the disease, when there is considerable watery exudation, the following formula is serviceable:

786. ℞. Hydrargyri chloridi mitis, ʒ ss.
Unguenti zinci oxidi, ʒ j. M.

Or the following:

787. ℞. Bismuthi subnitratis, ʒ ss.
Unguenti zinci oxidi, ʒ j. M.

When the itching is severe, the following may be employed, whether the eruption be moist or dry:

788. ℞. Acidi carbolici, ♏ x.
Unguenti zinci oxidi, ʒ j. M.

This will usually relieve the pruritus. Another ointment which generally acts very well:

789. ℞. Pulveris camphoræ, ʒ j.
Unguenti zinci oxidi, ad ʒ j. M.

Half a drachm to a drachm of glycerine added to this will often prove advantageous.

All these may be called soothing applications, and are to be employed during the acute stages of this affection. They should be applied morning and evening, the excess of the former application being gently removed with a soft cloth previous to applying a fresh quantity.

After two or three weeks of treatment, improvement, as a rule, ceases, and a change must be made. The following ointment is usually useful at this stage:

790. ℞. Picis liquidæ, ℥j.
Cerati simplicis, ℥j. M.

Or some other ointment, as the dilute nitrate of mercury or red oxide of mercury ointment, may be employed.

DR. TILBURY FOX, LONDON.

791. ℞. Zinci oxidi,
Calaminæ preparatæ, āā ℥j.
Glycerinæ, f.℥iss.
Aquæ rosæ, q. s. ad ℥vj. M.

Used in eczema generally when the surface is tender and red. The part should be lightly bandaged with this lotion, which should be used very freely, so as to keep the surface moist, and exclude the air if possible. If the itching or sensation of burning is bad, the following may be used:

792. ℞. Potassii cyanidi, gr. iij-v.
Adipis, ℥j. M.

In the second, or exudative stage, ointments should be generally avoided. In proportion as the heat or itching, the redness or swelling disappears, astringents should be employed; but whenever there are signs of irritation, soothing and emollient remedies should be used externally. This treatment, together with aperient tonics, generally controls the discharge. The diseased parts should be most gently handled at all times. Soap should not be used, and no friction with the clothes allowed. When the third, or scaly stage, is reached, it is often still highly necessary to avoid the use of any application which acts as an irritant, for irritability is one of the chief characteristics of the skin of an eczematous subject.

Astringents are generally called for in simple forms of eczema, such

as is seen in the scalp. Our author prefers, in connection with tonics, the use at the outset of:

793.	℞.	Sodii biboratis,	℈ ij.	
		Plumbi acetatis,	gr. ij.	
		Glycerinæ,	f. ʒ j.	
		Adipis,	ʒ j.	M.

A stronger ointment is:

794.	℞.	Unguenti hydrargyri nitratis,	ʒ ij.	
		Glycerinæ,	f. ʒ ij.	
		Adipis,	ʒ ij.	M.

Where thickening and induration finally remain, these may be regarded as secondary and ordinary results of congestion, and should be treated accordingly, by revulsives. Our author often uses:

795.	℞.	Argenti nitratis,	℈ ij.	
		Ætheris nitrosi,	f. ʒ j.	M.

Or:

796.	℞.	Olei juniperis pyrolignei,	f. ʒ j–iij.	
		Adipis,	ʒ j.	M.

Should this not suffice, order:

797.	℞.	Hydrargyri iodidi rubri,	gr. v–xv.	
		Adipis,	ʒ j.	M.

The above line of procedure holds good in the case of children; but here, in addition, an absorbent powder is serviceable. It may be:

798.	℞.	Zinci oxidi,			
		Calaminæ preparatæ,			
		Amyli,	āā	ʒ ss.	M.

Our author prefers a lead or calamine lotion, with exclusion of air, and at night a layer of elder-flower ointment, to anything else, as simple applications in *eczema infantilis*.

799.	℞.	Pulveris aluminis,	ʒ ij.	
		Infusi rosæ,	♁ j.	M.

Used in *eczema sine crustis*.

800.	℞.	Potassii cyanidi,		gr. v.	
		Sulphuris,			
		Potassii bicarbonatis,	āā	ʒ ss.	
		Cocci cacti,		gr. j.	
		Adipis,		ʒ j.	M.

In eczema with pruritus.

801. ℞. Camphoræ, ℥ss.
Alcoholis to dissolve, q. s.
Add:
Zinci oxidi,
Amyli, āā ℥ss. M.
Use as a powder to allay the *burning heat of eczema.*

802. ℞. Camphoræ, gr. viij
Tincturæ conii, f.℥ij.
Cerati adipis, ℥j. M.

803. ℞. Saponis mollis, ℥j.
Aquæ bullientis, Oj. M.
Scent with some essential oil, and use in the second stage of eczema, to counteract the infiltration.

804. ℞. Saponis mollis,
Alcoholis,
Olei cadini, āā f.℥j.
Olei lavandulæ, f.℥iss. M.

This preparation is more elegant than Hebra's "Tinctura saponis viridis cum picæ."

805. ℞. Olei juniperis pyrolignei, f.℥j-viij.
Adipis, ℥j. M.
Mix with ℥ss of mutton suet.

806. ℞. Picis liquidæ, f.℥j.
Camphoræ, gr. x.
Adipis, ℥x. M.

Dr. WATSON recommends in chronic eczema:

807. ℞ Tar ointment, ℥j.
Calomel, ℥j. M.
To which cosmoline may be added to dilute the tar, if it be too stimulating.

ERYTHEMA.

DR. L. DUNCAN BULKLEY, NEW YORK.

In *erythema simplex*, as well as in other acute skin diseases, this author has derived great benefit from the use of "Startin's mixture:"

808. ℞. Magnesiæ sulphatis, ℥j.
Ferri sulphatis, ℥j.
Acidi sulphurici aromatici, f.℥ss.
Tincturæ gentianæ, f.℥j.
Aquam, ad f.℥ij M.
One teaspoonful after meals.

J. M. DA COSTA, M. D., PHILADELPHIA.

809. ℞. Unguenti picis,
Unguenti hydrargyri oxidi rubri, āā ℥ss.
To be applied morning and evening, in *chronic erythema*. Internally, *Donovan's solution*, gtt. x, thrice daily.

In *acute erythema*, a useful sedative ointment is:

810. ℞. Liquoris plumbi subacetatis
Glycerinæ, āā f.℥j.
Cerati simplicis, ℥vj. M.

Or,

811. ℞. Cerati plumbi subacetatis, ℥vj.
Glycerinæ, f.℥ij. M.

PROF. J. LEWIS SMITH, OF NEW YORK.

812. ℞. Pulveris zinci oxidi,
Lycopodii, āā ℥vj. M.
To be dusted occasionally over the inflamed surface in the *erythema intertrigo* of infancy, when the inflammation is severe and accompanied by moisture.

In slight cases of this affection, due to friction of opposing surfaces of the skin, or to the irritation of certain discharges, if not accompanied by moisture and destruction of the epidermis, dusting the surface thickly with *powdered starch*, so as to prevent attrition, will be all the treatment required. The disease may also be satisfactorily treated in most cases by the following wash:

813. ℞. Cupri sulphatis, gr. ij–iv.
Aquæ rosæ, f.℥ij. M.
To be kept constantly applied by means of linen saturated with it and pressed between the inflamed surfaces.

When this disease is caused by frequent acid stools, remedies which cure the diarrhœal affection also cure the erythema.

HERPES.

DR. L. DUNCAN BULKLEY, OF NEW YORK.

In *herpes zoster* this author has found the following most efficient in controlling the neuralgic pain:

814. ℞. Zinci phosphidi,
Extracti nucis vomicæ, āā gr. ½.
This amount in one pill every three hours.

For local treatment, he dusts the whole of the affected part with powdered starch, then dusts a wide bandage of muslin with starch, and covers with it the diseased surface. This bandage is not to be removed for a week or longer.

TILBURY FOX, M. D., LONDON, PHYSICIAN TO THE SKIN DEPARTMENT, CHARING CROSS HOSPITAL, ETC.

815. ℞. Acidi carbolici, ℥ ij.
Glycerinæ, f. ℥ j.
Aquæ rosæ, ad f. ℥ viij. M.
Use in *ring-worm*, of the surface especially.

DR. LOUIS A. DUHRING, OF PHILA.

In herpes zoster the vesicles should not be punctured, but preserved as far as possible intact. Dusting powders, anodyne ointments and anodyne lotions may be employed. Carbolic acid, gr. x to aquæ f. ℥ j, is often of service; or the part may be painted with flexible collodion containing morphia, (gr. x to f. ℥ j,) to be painted over several times a day. Or with:

816. ℞. Fld. extr. grindeliæ robustæ, ℥ ss–j.
Aquæ, ℥ j. M.
Use as a lotion.

One of the most successful plans of treating zoster is by the *galvanic current*. It offers a prompt and effectual means of relief. The constant current is to be applied directly to the seat of the eruption, and over the course of the nerves, by sponge electrodes. Five to ten cells are sufficient in the majority of cases, the application being continued from fifteen to thirty minutes at each sitting, and repeated every day, or twice a day, until recovery takes place. The after-pains of zoster are also successfully treated by the galvanic current.

IMPETIGO.

J. M. DA COSTA, M. D., PHILADELPHIA.

817. ℞. Unguenti picis,
Unguenti hydrargyri oxidi rubri, āā ℥ss. M.
For *impetigo*. To be rubbed in morning and night.

If this fails, apply:

818. ℞. Cupri sulphatis, ℈i–ij.
Aquæ, f℥j. M.

Or use the solid sulphate of copper.

TILBURY FOX, M. D., M. R. C. P., ETC.

819. ℞. Plumbi acetatis, gr. xv.
Acidi hydrocyanici diluti, ♏xx.
Alcoholis, f.℥ss.
Aquæ, f.℥vj. M.
Use in *impetigo*, as a lotion.

Subsequently:

820. ℞. Hydrargyri ammoniati, ℈j.
Olei olivæ, f.℥j.
Adipis, ℥j.
Olei rosæ, ♏vj.
Tincturæ tolutani, gtt. xx. M.
As an ointment.

DR. HENRY G. PIFFARD, OF NEW YORK.

The treatment of *impetigo contagiosa* is simple. All that is necessary is to remove the crusts and apply a mercurial and sulphur ointment two or three times a day, and in a short time all traces of the affection will disappear, except the bluish-red discolorations which mark the site of the eruption, which will gradually fade away.

LEPRA.

J. M. DA COSTA, M. D., PHILADELPHIA.

821. ℞. Sodii sulphitis, ℥ ss.
Aquæ, f.℥ vj. M.
To be used as a wash, in *lepra*.

The patient at the same time being ordered, internally:

822. ℞. Liquoris potassii arsentiis, ♏ l.
Tincturæ gentianæ compositæ, f.℥ iv. M.
A dessertspoonful thrice daily.

In true leprosy, no cure is known. Of late, much has been said of "gurjun oil," obtained from a species of *Dipterocarpus*, and of cashew-nut oil, from the fruit of the *Anacardium occidentale*. Dr. Von Someren (*Medical Times and Gazette*, April, 1874,) believes the latter tends to disperse the tubercles.

LICHEN.

DR. L. DUNCAN BULKLEY, NEW YORK.

The eruption of acute lichen arises from digestive diseases, and will yield to an active cathartic, followed by a course of "Startin's mixture." (F. 808.) To check the itching, a lotion of an ounce of bicarbonate of soda to a pint of water, may be used.

ERASMUS WILSON, F. R. S., ETC., LONDON.

The constitutional treatment of lichen requires mild aperients, followed by bitters and mineral acids, by chalybeates and quinine. In chronic cases arsenic will generally effect a cure.

The local treatment of lichen calls for the use of ablutions with the juniper-tar soap, tepid bathing, and anti-pruriginous and moderately stimulating lotions.

But the most certain and powerful *anti-pruriginous lotion* is:

823. ℞.	Olei juniperi pyroligniei,			
	Alcoholis,	āā	f.℥j.	
	Aquæ,		f.℥vj.	M.

This is very successful in *lichen urticatus*.

DR. TILBURY FOX, LONDON.

In *lichen circumscriptus*, an alkaline course is beneficial; and if there be any tendency to rheumatism, bromide of potassium may be given in addition. In this variety of lichen, the following ointments are serviceable:

824. ℞.	Unguenti hydrargyri nitratis,		℥ij.	
	Adipis,		℥vj.	M.
825. ℞.	Unguenti hydrargyri ammoniati,		℥j.	
	Adipis,		℥viij.	M.

In *lichen agrius*, maceration with glycerine, or the following, is useful:

826. ℞.	Sodii biboratis,		℥j–ij.	
	Glycerinæ,		f.℥j.	
	Adipis,		℥j.	M.

Or paint with:

827. ℞.	Argenti nitratis,		gr. ij–x.	
	Aquæ,		f.℥j.	M.

When the disease is very chronic, and there is much thickening of the skin in general, and in *lichen pilaris*, a course of bicyanide of mercury is necessary.

828. ℞.	Hydrargyri bicyanidi,		gr.	
	Tincturæ cinchonæ compositi,		f.℥iv.	M

A dessertspoonful thrice daily.

This will cause an absorption of the plastic material poured out into the derma; and local stimulation to the skin, with sulphur vapor baths, may then be employed.

PROF. HARDY, FACULTÉ DE MÉDECINE DE PARIS.

829. ℞. Hydrargyri chloridi mitis, gr. xv.
Acidi tannici, gr. xxx–l.
Adipis, ℥j. M.

To be applied several times a day in lichen. Alcoholic and vapor baths. Bitter infusions with bicarbonate of soda.

830. ℞. Potassii cyanidi, gr. ¼–iss.
Adipis, ℥j. M.

This ointment is useful in calming the itching occasioned by lichen.

PHTHEIRIASIS, PEDICULI.

DR. L. DUNCAN BULKLEY, OF NEW YORK.

The cutaneous phenomena caused by the presence of lice are of frequent occurrence, especially in dispensary and hospital practice. The treatment employed for lice in the head by our author is by soaking three times in *kerosene* oil within twenty-four hours; then washing thoroughly with castile soap and warm water, and applying afterwards *cod-liver oil*, if the head be very sore, or zinc ointment, or the *white precipitate* diluted three times. He has used this plan in private practice, and does not find that it is objected to; whereas the thoroughness and certainty of cure by a single soaking renders it a treatment to be recommended. It kills the nits, and they become detached on repeated combing, which does not happen when an agent has been used which does not penetrate them. In private practice good results are obtained, but not so quickly, by means of highly-scented white precipitate or citrine ointment, diluted three times; and the nits may be separated by means of a wash of equal parts of *acetic acid* and *cologne*.

DR. LOUIS A. DUHRING.

The various remedies used to destroy lice comprise the *mercurial* preparations, *staphisagria*, (seeds of Delphinium staphisagria,) *pyrethrum*, (flowers of Pyrethrum carneum and roseum,) *sulphur*, *sabadilla*, *cocculus indicus*, *tobacco*, *carbolic acid* and *petroleum*. They are employed in the form of ointment, powder or lotion, as may be deemed most convenient.

For lice in the hair, powdered sabadilla or staphisagria may be

sprinkled throughout the hair. Decoction of cocculus indicus is a reliable remedy. Where eczema or excoriations are present, white precipitate, gr. x–xv to cerati simplicis ʒj, will be found valuable.

The nits are to be removed by repeated washings with alkaline or acid lotions, such as of soda, borax, soft soap, vinegar or alcohol.

In body lice, the clothes should be baked or boiled to kill the ova, or where this is impossible, an ointment of powdered staphisagria, 3ij to ℥j, applied freely to the skin, will cause the parasites to disappear temporarily. Lotions of carbolic acid, f. 3j–ij to aquæ Oj, with glycerine ℥j, will be found useful in allaying the irritability of the skin. The undergarments should be changed frequently, and baths of hot water and soap be often taken.

For crab lice, which infest the pubis, the following lotion is most effective.

831. ℞. Hydrargyri chloridi corrosivi, gr. ij–iv.
Alcoholis,
Aquæ, āā f.ʒj. M.
For local use only. To be well rubbed in.

The tincture of cocculus indicus is another cleanly and effectual remedy. The parts should be well washed twice daily with soft soap and water, and the remedy applied for several days after the pediculi have been destroyed, so as to insure complete destruction of the ova. Infusion of tobacco, white precipitate ointment and mercurial ointment are also well-known remedies.

PITYRIASIS (SEBORRHŒA, ACNE, SEBACEA, DANDRUFF.)

DR. LOUIS A. DUHRING.

Where there is obvious functional disturbance of some of the organs of the body, there is need for general constitutional treatment. The preparations of iron are exceedingly valuable, and may be given for some months. The following will be found serviceable:

832. ℞. Tincturæ ferri chloridi,
Acidi phosphorici diluti, āā f.ʒj.
Syrupi limonis, f.ʒij. M.
Half a teaspoonful thrice daily in a half glass of water.

In some cases arsenic in small doses may be advantageously combined with the iron:

833. ℞. Liquoris potassii arsenitis, f.℥j.
Vini ferri, ad f.℥iv. M.
One teaspoonful three times daily, directly after meals.

Seborrhœa capitis calls for special directions. Any accumulation of sebum or scales on the scalp must be removed. Olive or almond oil should be rubbed in at night, and in the morning the scalp washed with warm water and soap. A stronger preparation than ordinary soap is the following valuable one introduced by HEBRA:

834. ℞. Saponis viridis, ℥viii.
Alcoholis, f.℥iv.
Dissolve and filter. To be used as a scalp-wash.

A tablespoonful may be poured upon the head, together with a small quantity of water, and rubbed in vigorously. The hair having been well dried, in the majority of cases moderately stimulating, oily preparations will be found of benefit. Carbolic acid acts very favorably, combined as follows:

835. ℞. Olei ricini, f.℥iv.
Acidi carbolici, ♏xx.
Alcoholis, f.℥iss.
Olei amygdal. amarum, ♏iv. M.
To be applied after washing.

Of ointments, the red oxide of mercury and ammoniated mercury are especially useful, prepared in the strength of gr. v–x to ℥j.

836. ℞. Hydrargyri oxidi rubri, gr. v.
Cosmolinæ, ℥j. M.
For an ointment. A small quantity to be applied once a day.

The treatment by the washing and subsequent ointment must be persisted in for weeks or months. The prognosis is not favorable for a speedy termination of the complaint.

DR. HENRY G. PIFFARD, OF NEW YORK.

This specialist has had the best success in this disease by a preliminary green soaping for several days, followed by tar ointment for a week or two, succeeded by a mercurial ointment (white precipitate or nitrate), and finally the prolonged use of some bland, oily preparation, as:

837. ℞. Hydrargyri sulphatis flavæ, gr. xv.
Unguenti rosarum, ℥j. M.

J. M. DA COSTA, M. D. PHILADELPHIA.

838. ℞. Unguenti hydrargyri nitratis,
Cerati simplicis, āā ℥ss. M.

For *pityriasis of the scalp.* To be applied morning and night. The hair should be cut short, and poultices applied before using this ointment. The scalp is to be kept clean with soap.

TILBURY FOX, M. D., LONDON, PHYSICIAN TO THE SKIN DEPARTMENT, CHARING CROSS HOSPITAL.

839. ℞. Creosoti, gtt. xl.
Glycerinæ, f.℥iij.
Aquæ, f.℥vj–viij. M.

Use in pityriasis.

840. ℞. Hydrargyri ammoniati, ℈j.
Olei olivæ, f.℥j.
Adipis, ℥j.
Olei rosæ, ♏vj.
Tincturæ tolutani, gtt. xx. M.

Use in *pityriasis capitis.*

PRURIGO AND PRURITUS.

ANTI-PRURITICS.

The best applications suited for the temporary relief of pruritus are *vinegar, lemon-juice, weak solution of corrosive sublimate, tincture and watery solution of opium, creosote ointment and lotion, tar ointment,* and especially that of *juniper-tar, ointment of opium with camphor,* the *diluted nitrate of mercury ointment, ointment of lime, ointment of cyanide of potassium, lotion of hydrocyanic acid, aconite, acetate of ammonia, sulphuret of potash, chlorate of soda,* etc.

The follcwing formulæ are all useful:

841. ℞. Calcis hydratis, ℥ij.
Sodii carbonatis, ℥ss.
Tincturæ opii, f.℥ss.
Adipis, ℥j. M.

842. ℞. Tincturæ opii, f℥ss.
Sulphuris sublimati, ʒss.
Zinci oxidi, ʒj.
Olei amygdalæ dulcis, f℥j.
Adipis, ʒiij. M.

843. ℞. Hydrargyri sulphureti rubri, ʒij.
Tincturæ opii, f℥ij.
Sulphuris sublimati, ʒss.
Adipis, ʒv. M.

844. ℞. Ammonii muriatis, ʒj.
Pulveris hellebori albi, ʒss.
Adipis, ʒiij. M.
For local prurigo.

A local remedy frequently of service in allaying the itching of *prurigo senilis* is glycerine, applied with a sponge.

ERASMUS WILSON, F. R. S., LONDON, ETC.

Arsenic, properly administered and watched, may be regarded as a specific in prurigo. Much may be accomplished toward the restoration of a healthy condition of the skin by ablutions with the juniper-tar and carbolic acid soap, frictions and manipulations with the hand, after the manner of the shampooer, the tepid bath, the sweating bath, used with discretion, and moderately stimulating local applications.

DR. L. D. BULKLEY.

As a general anti-pruritic, Dr. BULKLEY offers to the profession the following formula:

845. ℞. Pulv. gummi camph.,
Chloral hydratis, āā ʒj.
Ung. aquæ rosæ, ʒj. M.
Rub the chloral and camphor carefully together till fluid results, then add slowly the ointment, mixing well.

This, when applied to the healthy skin, produces no effect, but possesses great power in arresting itching without over-stimulating the parts. It does not answer when the skin is at all broken; it is then necessary to employ other less irritating agents; but the burning sensation caused on its first application lasts but a few moments, while the relief occasioned will last for hours, or even a whole day.

PSORIASIS.

DR. HENRY G. PIFFARD, OF NEW YORK.

This writer concedes *arsenic* a great repute in psoriasis, but believes that in the best practice it is being replaced by other means. *Balsam of copaiva*, four to eight capsules daily, is an efficient remedy. *Carbolic acid*, gr. j–iij thrice daily, is successful in some cases.

Local applications are strong alkalies, tar, emollients and baths.

J. M. DA COSTA, M. D., PHILADELPHIA.

846. ℞. Unguenti hydrargyri oxidi rubri,
Unguenti hydrargyri, āā ʒij.
Glycerinæ, f.ʒss. M.

For psoriasis; to be rubbed in morning and evening, when there are no vesicles, after washing the parts with castile soap.

Internally,

847. ℞. Liquoris arsenici et hydrargyri iodidi, f.ʒss.
Extracti dulcamaræ fluidi, f.ʒijss. M.

A teaspoonful thrice daily, after meals.

Avoid fatty articles of diet, and those highly salted. The most important thing in skin diseases is to determine, not so much their character externally, as to ascertain with what internal conditions they are associated.

In the acute stages of psoriasis, the following may be used:

848. ℞. Cerati plumbi subacetatis, ʒij.
Glycerinæ, f.ʒj.
Cerati simplicis, ʒiv. M.

Attention should be paid to the digestive system. Then, after the acute inflammatory condition has subsided, the red precipitate ointment (F. 846) may be employed, or:

849. ℞. Sulphuris iodidi, gr. x.
Adipis, ʒj. M.

To be rubbed in morning and evening.

Or,

850. ℞. Unguenti hydrargyri nitratis,
Unguenti picis,
Cerati adipis, āā ʒss. M.

Internally, Donovan's solution, combined as above. (F. 847.)
Or,

851. ℞. Liquoris arsenici et hydrargyri iodidi, f.℥ ij.
Tincturæ cinchonæ compositæ, f.℥ iij. M.
A dessertspoonful thrice daily.

TILBURY FOX, M. D., LONDON, PHYSICIAN TO THE SKIN DEPARTMENT, CHARING CROSS HOSPITAL.

852. ℞. Argenti chloridi, gr. v–xx.
Cerati adipis, ℥ vj. M.
A useful ointment in this affection.

If the disease is slight and localized to a few spots only, treatment may be commenced at once with tarry applications, for the scales are thereby removed sufficiently well.

853. ℞. Olei juniperis pyrolignei, f.℥ ij.
Olei olivæ, f.℥ j.
Adipis, ℥ j. M.
To be used night and morning.

Or,

854. ℞. Creosoti, gtt. vj.
Unguenti hydrargyri, gr. xv.
Adipis, ℥ ij. M.

In chronic cases, with thickening of the patches, or where there is much elevation of the disease, as in the *nummular* variety, a more decided impression may be produced by:

855. ℞. Picis liquidæ,
Alcoholis, āā f.℥ ij. M.
To be rubbed in with flannel.

When there is a tendency to "discharge," use:

856. ℞. Unguenti hydrargyri nitratis, ℥ ij.
Glycerinæ, f.℥ ij.
Linimenti camphoræ, f.℥ j. M.

PROF. MORITZ KOHN.

857. ℞. Acidi carbolici, gr. xv.
Pulveris glycyrrhizæ et syrupi, q. s. M.
Divide into twenty pills. Give at first six to nine a day, and increase gradually to twenty a day.

Professor HEBRA has also obtained good results from these pills in psoriasis. But it must not be forgotten in using them that the exhibition of large doses of carbolic acid irritates the kidneys and provokes the passage of albumen in the urine.

858. ℞. Sulphuris loti,
Extracti gentianæ, āā ʒss.
Altheæ pulveris, q. s. M.
Divide into twenty pills. From two to ten a day, in squamous skin affections.
Sulphur baths.

ROSACEA (ACNE ROSACEA.)

This writer observes that *rosacea* is a disease of the blood vessels, especially of the nose, and is not a species of acne, though they often occur together. Cases with this disfiguring malady go about not cured, because physicians tell them nothing can be done for them. Dr. DUHRING has had excellent results from stimulating washes and ointments, especially from:

859. ℞. Sulphuris loti, ʒj.
Adipis, ʒj. M.
Rub on the parts daily.

Tonics, aperients, a carefully regulated diet, etc., should be remembered, if necessary. Three months should effect a cure.

DR. TILBURY FOX, LONDON.

In *acne rosacea*, diet and good hygiene are of vast importance. If there be many varicose vessels, they may be cut across, the incisions never being deeper than two lines. Cold water will stay the bleeding, and collodion may be subsequently used to contract and heal the incisions. Acids and pepsin, given internally, do much good. Much has been said of the efficacy of the iodo-chloride of mercury in *acne rosacea* and *indurata*. The following formula is used:

860. ℞. Hydrargyri iodo-chloridi, gr. v–xv.
Adipis, ʒj. M.

The ointment requires care, as it produces a good deal of irritation.

SCABIES.

DR. HENRY G. PIFFARD, NEW YORK.

Put the patient into a warm bath, let him soak half an hour, then have him rubbed all over, except the face, with common soft soap and a scrubbing brush. Then rinse with clean water, dry, and rub in, with strong friction, the following:

861. ℞. Potassii iodidi, ℥j.
Unguenti sulphuris, ℥j. M.

Let him go to bed, and the next morning put on clean underclothes. One such application is usually sufficient.

Sometimes the above treatment must be modified for one more mild.

Dr. McCALL ANDERSON recommends the following as less irritating than ordinary sulphur ointment:

862. ℞. Olei cadini,
Sulphuris præcipitati, āā ℥iij.
Glycerinæ amyli, ℥vj.
Adipis benzoati, ℥iij. M.

UNGUENTUM SULPHURIS CUM ANTHEMIDE.

863. ℞. Unguenti anthemidis, ℥vij.
Sulphuris sublimati, ℥j.
Potassii carbonatis, ℥ss. M.

This is a mild ointment for scabies, and well adapted for persons of sensitive skin, and for children.

DR. LOUIS A. DUHRING.

This author states that sulphur, in one form or another, is the remedy which may be relied on in all cases. *Balsam of Peru* may be advantageously combined with it, constituting an excellent preparation for children, as in the following formula:

864. ℞. Sulphuris sublimati,
Balsami Peruviani, āā ℥ss.
Adipis, ℥j. M.
For an ointment.

Styrax is also a valuable remedy, has a pleasant odor, is cleanly, and does not irritate the skin:

865. ℞. Styracis liquidi, ℥j.
Adipis, ℥ij. M.
Melt and strain.

A preparation much used at the St. Louis Hospital, Paris, is:

866. ℞. Potassii carbonatis, ʒj.
Sulphuris sublimati, ʒij.
Adipis, ʒiss. M.

The patient is well rubbed with soft soap for half an hour; he is then placed in a warm bath for half an hour; after which the above ointment is thoroughly rubbed into the skin, and the cure is completed.

Professor HEBRA'S formula is:

867. ℞. Sulphuris sublimati,
Olei cadini, āā ʒiij.
Cretæ preparatæ, ʒij.
Saponis viridis,
Adipis, āā ʒj. M.

Patients are rubbed, morning and evening, for two days, after which nothing is done for a week, when, for the first time, a warm bath is ordered, and the treatment concluded.

DR. ROBERT LIVEING, OF LONDON.

This practitioner says that in the treatment of itch the best plan for proceeding is as follows: Having once ascertained that scabies exists, order one thorough application at night of mild *sulphur ointment* to the whole of the body except the head, and direct the patient to sleep in the drawers, jersey and socks that he has used the day before; this will secure the death of any stray acari about the body or in his underclothes. In the morning, he should use a warm bath. The after-treatment should consist of the local inunction of the ointment into those parts only which are especially affected, for two or three nights. In all mild cases, the cure by this plan is quite certain, and is attended with very little inconvenience. The objections to sulphur ointment are its irritating qualities and its smell. The first is avoided by using an ointment made with half a drachm to two scruples of the precipitated sulphur to one ounce of lard. The precipitated is in finer powder, and less gritty than the sublimed sulphur, and more effica-

cious. A great part of the inconvenience arising from the smell of the sulphur may be avoided by using it only during the night. A drop or two of *sandal-wood oil* will quite disguise the smell. In cases of long standing it is necessary to have the clothes baked; but a temperature of 190° to 200° Fahr. is quite sufficient, and the bed may be easily fumigated by using a little sulphur sprinkled on the cinders (not too hot) of a warming-pan.

It often happens that the irritation of skin remains after the scabies is cured, and this induces people to go on with the sulphur treatment too long. Instead of doing so, a mild stavesacre ointment should be used, made with the oil of stavesacre and lard; this relieves the itching, and at the same time will kill any stray acari that may have escaped death from the sulphur.

SYCOSIS (MENTAGRA; BARBER'S ITCH.)

DR. LOUIS DUHRING.

In treating this disease, depilation and the use of parasiticides are both demanded. The crusts must be loosened with olive oil, and removed with soap and hot water. The face should be shaved every other day, allowing time between the shaving for the hairs to grow sufficiently to depilate. These measures—shaving and depilation upon alternate days—should be perseveringly practiced until the new hairs show themselves to be healthy.

In the choice of a parasiticide one should be guided by the stage of the disease, its extent, and the general condition of the skin. For the first few days it is well not to employ too stimulating remedies. *Corrosive sublimate*, with water or alcohol, gr. i–ij to the ℥j, constitutes an excellent lotion, suitable to any stage of the disease. It may also be employed as an ointment of the same strength. The *yellow sulphate of mercury*, as an ointment, gr. xv–xxx to ℥j, may often be used with the best results. Of the milder yet effective remedies, *sulphate of sodium*, as an ointment, or as a lotion, ℥j to ℥j; *sulphurous acid*, one part to two or four of water, must be considered as among the most valuable.

Whatever application is selected, it must be applied once or twice daily in such a manner that it penetrates the hair follicles. A lotion should be sopped upon the part for ten or fifteen minutes at each sitting; and an ointment should be slowly and thoroughly rubbed in for the same length of time. Two or more months will, in the majority of cases, be necessary to effect a cure.

DR. ROBERT LIVEING, M. D., LONDON.

This author states that there is but one way of curing sycosis with any certainty, and that is *epilation*. The best plan for doing this is as follows: All crusts must first be removed in the usual way by oil and poultices; the beard must be cut short with a pair of scissors, and wherever a yellow point is seen, the hair should be pulled out with a pair of depilatory forceps. This is quite unattended with pain, for the hair comes out very easily with its sheath attached to it. When this has been done, the compound sulphur ointment of Mr. STARTIN (see under Tinea) must be applied.

For the first day or two the epilation may be confined to the parts most affected, and only those hairs extracted which run through pustules; afterwards, however, the diseased surface should be divided into a certain number of patches, one of which should every day be thoroughly epilated. The healthier the part, the more pain there is in removing the hair; and as the disease lessens, the patience and perseverance of the patient will be taxed to the utmost. The young hairs which appear after epilation should be removed until the skin is quite healthy; and after each removal the sulphur or nitrate of mercury ointment should be well rubbed into the surface, and at night it should be applied on pieces of rag, kept in close contact with the skin.

Perseverance in this plan of treatment invariably cures the disease, whereas, if left to itself, it may last for many years, and lead, in the end, to the complete destruction of the hair, and the formation of permanent cicatrices. The patient should shave for at least six months after the disease has disappeared.

Sycosis sometimes produces small, raspberry-like growths, which must be destroyed by the application of nitrate of silver.

DR. C. A. SMITH, OF IOWA.

This practitioner deems depilation needless. (*New York Medical*

Journal, February, 1876.) He prefers, to all other applications, *dry sulphur*. To avoid any irritation of the skin, we should not even syringe with hot water to remove the crusts, but lift them up with the point of a lancet; precipitated sulphur is then to be applied with a brush, three or four times a day. Later, one or two applications a day will be sufficient. After this treatment is continued two or three weeks, the ulcers will present a clean, red base, and the final healing will go quickly on. It will certainly hasten the cure to remove the loose hairs; but if the hairs be pulled out they are not regenerated; if they be left untouched, a good many will remain, even on places where the ulceration is deep, and in the future help to cover the unsightly cicatrix.

DR. HENRY S. PURDON.

868. ℞. Acidi chromici, ℥j.
Aquæ destillatæ, f.℥j. M.

A useful application in sycosis menti, and other parasitical skin affections.

DR. VON VEIEL, OF CANSTADT.

This practitioner usually cures barber's itch in four weeks. He cuts the hairs short, removes crusts, and rubs in:

869. ℞. Saponis viridis, ℥ss.
Picis, ℥j. M.

He then removes the hairs with the forceps, and applies acetic acid, finishing with sulphur ointment.

DR. JEANNEL, PARIS.

870. ℞. Hydrargyri chloridi corrosivi, gr. vj.
Adipis, ℥j.

Dissolve the corrosive sublimate in a little water, and incorporate with the lard. After having removed the crusts of the mentagra by the aid of poultices and warm fomentations, apply, morning and evening, a small quantity of this ointment.

DR. DAUVERGNE, PARIS.

871. ℞. Ferri sulphatis, gr. iss.
Carbonis ligni, ℥j.

Reduce to a fine powder, and mix carefully. Cover the affected chin with this powder in the evening.

872. ℞. Ferri sulphatis, gr. xv–xxx.
Aquæ, f.℥ij. M.

To be employed in lotions. But at the commencement, when the affection is acute, recourse must be had to poultices and repeated purgatives. Later on, vapor douches every other day to the affected part are productive of benefit.

TINEA, RINGWORM.

DR. LOUIS A. DUHRING.

In *tinea favosa*, or scald head, the two remedies are parasiticides and depilation. ' 'The hair is first to be cut as short as possible with scissors, after which the crusts are to be removed by means of poultices or olive oil and soft soap and hot water. The hairs are then to be extracted with a pair of forceps. Immediately after this has been done, a parasiticide it to be well rubbed into the part. Any of the following may be chosen:

873. ℞. Hydrargyri chloridi corrosivi, gr. j–ij.
Aquæ, f.℥j. M.

Or,

874. ℞. Sodii sulphitis, ℥j.
Aquæ, f.℥j. M.

Or,

875. ℞. Acidi sulphurosi, f.℥ss.
Aquæ, f.℥j. M.

Or,

876. ℞. Sulphuris loti, ℥ss.
Cerati simplicis, ℥j. M.

Or,

877. ℞. Hydrargyri sulphatis flavi, ℥ss.
Cerati, ℥ss. M.

The tarry preparations are also valuable, either alone or in combination with other more active remedies. From two to four months are usually necessary for a cure.

In *tinea circinata*, especially in children, mild applications are usually sufficient to effect a cure. An ointment of ammoniated mercury, gr. x–xx to ʒj, will very often suffice; or ointment of nitrate of mercury, ʒj to ʒj. Acetic acid, tincture of iodine, cantharidal collodion and sulphurous acid are all serviceable. Care should be taken that the applications be mild and the skin be not irritated. The ointments should be applied in small quantity, and well rubbed into the affected part once or twice daily.

In *tinea tonsurans* depilation should be practiced, as in tinea favosa, a portion of the hairs being extracted each day until the surface has been well cleared, and parasiticides applied. A preparation much used in London is the following:

878. ℞. Iodinii, ʒij.
Olei picis, f.ʒj. M.
To be gradually and slowly mixed.

A small quantity of this mixture should be painted on the patches with a brush, and allowed to remain on until the crust is cast off, in the course of five or six days, when it may be re-applied. A few applications generally suffice. The late Mr. Startin, of London, esteemed the following:

879. ℞. Sulphuris sublimati, gr. xxx.
Hydrargyri ammoniati,
Hydrargyri sulphureti nigri, āā gr. x.
Mix, and add:
Olei olivæ, f.ʒij.
Creosoti, gtt. iv.
Adipis, ʒvj. M.
For an ointment.

Painting the patches with glacial acetic acid or with cantharidal collodion once a week or oftener, and making use of one of the milder parasiticides in the meantime, is also a good method of treatment.

For Tinea Sycosis, see Sycosis.

DR. HENRY G. PIFFARD, OF NEW YORK.

The treatment of *tinea favosa* is to remove the crusts, to epilate the part, and thoroughly rub in a solution of corrosive sublimate, gr ij to water f. ʒj. Sulphur or turpeth ointment, gr. xx–xxx to lard ʒj, will destroy the parasite upon the surface, but in a few weeks the disease will return.

DR. TILBURY FOX, LONDON.

In tinea favosa the hair should be cut short; the crusts must be removed by soaking with:

880. ℞. Sodii hyposulphitis, ʒiv.
Glycerinæ, f.ʒij.
Aquæ, ad f.ʒvj. M.

Or, if preferred, with:

881. ℞. Sodii hyposulphitis, ʒiij.
Acidi sulphurosi diluti, f.ʒss.
Aquæ, ad Oj. M.

When the scalp is cleansed, the hairs must be extracted one by one, and parasiticides applied at once.

Our author prefers for this purpose:

882. ℞. Sodii biboratis, ʒj.
Hydrargyri chloridi corrosivi, gr. x–xx.
Aquæ, f.ʒij–iij. M.

A certain portion of the surface should be cleared each day, and the whole head meanwhile kept moistened with sulphurous acid lotion.

This author adds that whenever a child is brought to the practitioner for his advice on account of the presence of what seem to be scurfy-looking places on the head, if these are small, and the general surface of the scalp is healthy, they are to be inspected for ringworm. A careful search should be made for broken-off hairs, and these or the scales, and any attached hairs, should be submitted for microscopic examination for fungous elements in them. In cases of chronic ringworm, all merely scurfy patches should be carefully examined, for a solitary piece of dead hair lodged in the follicle may explain the mischief, as it is generally loaded with fungous elements, which are readily sown broad-cast to re-light up the old mischief if parasiticide treatment is abandoned. Such ill-developed cases of ringworm, as before observed, may be the source of infection to many a child in public institutions and schools.

Dr. DYCE DUCKWORTH has suggested a simple and valuable means of recognizing true ringworm of the scalp. A few drops of chloroform are to be poured upon the head of the patient, who must be placed in a good light between the operator and the window. On evaporation of the chloroform, the hairs affected by ringworm are seen to become

of a yellowish-white color, opaque, and like fine filaments of a vegetable lichen. This change is observable not only upon the hairs, but also on the skin in the immediate neighborhood. Small whitish masses are seen upon the scalp, and especially at the point of emergence of the hairs. The healthy hairs are quite uninfluenced.

Goa powder and *chrysophanic acid*, prepared from it, have been highly extolled in true ringworm by BALMANNO SQUIRE and others. Some cases were treated by painting on the patches a saturated solution of chrysophanic acid in benzole, which retains ten grains to the ounce in the cold. Cases of tinea circinata were cured by this in about a half a dozen applications. Other cases were treated with an ointment consisting of chrysophanic acid gr. xx, acetic acid ♏ xx, simple ointment ʒ j, according to the formula of Dr. LIMA. Chrysophanic acid has, however, proved too irritating for general use.

DR. L. DUNCAN BULKLEY.

In *tinea circinata* this practitioner has derived excellent results from the nitrate of mercury:

883. ℞. Unguenti hydrargyri nitratis, ʒ ij.
Unguenti aquæ rosæ, ʒ vj. M.
To be well rubbed in, morning and night.

He has also used with success an ointment of the *liquor picis alkalinus* (see Index) f. ʒ j–ij to ʒ j.

In *tinea tonsurans*, considerable reputation has been gained by

COSTER'S PASTE.

884. ℞. Iodinii, ʒ ij.
Olei picis decolorati, ʒ j. M.

It was first introduced by Dr. COSTER, of Hanwell Central London Schools. This preparation is painted on the affected parts with a firm brush. It forms a cake, which separates at the end of a week or fortnight. It may require to be repeated once or twice, but often more frequently. It causes little or no pain; is not liable to cause abscesses or destruction of the hair follicles, such as often result from deep blistering. The oil of tar is obtained by distillation from the common tar, and has a specific gravity of .835. It is the light oil of wood-tar. It is colorless when quite fresh, but changes to a sherry color with keeping. It has a specific gravity of .853 to .867. It is known in com-

merce as rectified spirit of tar, and in some districts is largely used as a sheep-dressing by farmers.

ALDER SMITH, M. B., LONDON.

In a monograph on *ringworm* (1881) this author says that in recent cases it is absolutely necessary to shave the hair. He then blisters the spots and dresses with *carbolic glycerine*, from equal parts to two or even six parts of glycerine, beginning with the weaker mixture. Where a large extent of surface is involved, he prefers the following ointment:

885. ℞. Acid. carbol. pur.,
Ung. hydrarg. nit.,
Ung. sulphuris, partes equales. M.

It is important to make up this ointment *without heat*, rubbing the citrine and sulphur ointments together, and then adding the carbolic acid. It should be made fresh every week. A cap should be worn. In chronic cases, *oleate of mercury* is preferable as an application.

URTICARIA.

WILLIAM AITKEN, M. D., EDINBURGH.

In the treatment of nettle-rash, emetics and purgatives are to be employed in the first instance; afterward, faulty digestion is to be corrected. The surface of the eruption may be dusted with flour, or the following lotion may be used:

886. ℞. Ammoniæ carbonatis, ʒj.
Plumbi acetatis, ʒij.
Aquæ rosæ, f.ʒ viij. M.

ERASMUS WILSON, F. R. S., ETC., LONDON.

In *chronic* urticaria, the deranged functions are to be restored. The administration of the mineral acids with a bitter is serviceable. Very chronic cases require arsenic. The following may be used:

887. ℞. Liquoris arsenici chloridi, f.ʒ ss.
Acidi muriatici diluti,
Aquæ aurantii florum, āā f.ʒ ij.
Syrupi simplicis, f.ʒ iij. M.
A tablespoonful to be taken alone or in water, *with the meals*, three times a day.

The local treatment consists in the use of remedies for the purpose of relieving the itching, tingling and smarting. For this purpose, employ sponging with hot water, ablution with the juniper-tar or carbolic acid soap, frictions with

UNGUENTUM PICIS JUNIPERI.

888. ℞. Olei juniperi pyrolignici, f.ʒ j.
Adipis purificatæ, ʒ ij.
Sevi ovilli purificati, ʒ vj. M.
Melt with gentle heat and make an ointment.

This is an elegant preparation. It may be used of the above strength or diluted. Or the

LOTIO HYDRARGYRI BICHLORIDI.

889. ℞. Amygdalæ amaræ, No. xx.
Aquæ destillatæ, f.ʒ vj.
Contuse and mix together, then strain and add:
Hydrargyri chloridi corrosivi, gr. xvj.
Spiritûs vini rectificati, f.ʒ ij. M.

Or the

LOTIO ACIDI CARBOLICI.

890. ℞. Acidi carbolici fluidi, f.ʒ ss–j.
Glycerinæ, f.ʒ ss.
Aquæ destillatæ, f.ʒ vijss. M.

Or, sponging with hot vinegar, with a lotion of carbonate of ammonia, a lotion of aconite, and liniments of opodeldoc and chloroform or laudanum. When one application fails, the other must be tried. The tepid bath affords almost instantaneous relief.

XVII. VENEREAL DISEASES.

Gonorrhœa, Acute and Chronic (Complications and Sequelæ)—Syphilis, Primary and Constitutional.

GONORRHŒA.

DR. THOMAS F. BETTON, OF PHILADELPHIA.

This physician (*Medical Times*, October, 1871,) has found, by many years' experience, that weak injections of acetate of lead, gr. j–ij to rose-water f ℥ j, assisted by a cold sitz-bath morning and evening, is sufficient in all cases of simple clap, when taken early. He considers the abortive treatment by strong injections as both useless and pernicious.

DR. LOUIS BAUER, OF ST. LOUIS.

This surgeon strongly recommends the simple treatment of acute gonorrhœa. In addition to the usual hygienic rules, he prescribes:

891. ℞. Inf. sem. lini (ex ℥ iij parati), ℥ vj.
Extr. opii aquosi, ♏ xviij. M.
Use as an injection, warm, every three hours, and retain for a few minutes.

It is advisable first to clean the urethra with a warm-water injection. The discharge diminishes at once. Toward the end, a very weak solution of acetate of lead, gr. ½ to the ounce, may be alternated with the above.

DRS. VAN BUREN AND KEYES, NEW YORK CITY.

These experienced writers do not countenance the abortive treatment in any form. The only one at all allowable is by means of exceedingly mild injections, as that recommended by NIEMEYER:

892. ℞. Acidi tannici, gr. v.
Vini rubri, f ℥ j. M.
This can do no harm, at any rate.

The *hygienic* treatment of gonorrhœa is often sufficient in mild

cases. This is in total abstinence from sexual activity, alcoholic beverages, violent exercise, and salt and highly-seasoned food. A frequent warm bath, and a suspensory bandage for the testicles, if they are sensitive, are also required.

The medical treatment varies, as the disease is in the increasing, stationary, decreasing or gleety stage.

Increasing Stage.—The patient, if he will, had better go to bed. Internally, the following alkali should be given:

893. ℞. Potassii citratis, ℥ ss-j.
Spiritûs limonis, f. ℥ ss.
Syr. simplicis, f. ℥ ij.
Aquæ, f. ℥ j. M.

A dessertspoonful, largely diluted with water, three or four times a day, fasting.

The bicarbonate of potash may be used instead of the citrate, and gr. j–iij extract of hyoscyamus added, if micturition is quite painful.

The balsams and injections are of doubtful advantage in this stage of true gonorrhœa, but in bastard gonorrhœa, and in mild urethritis, they are of great importance from the first, as:

894. ℞. Liq. plumbi subacetatis diluti, f. ℥ j.
Extracti opii aquosi, gr. vj.

Mix and strain.

895. ℞. Zinci sulphatis, gr. j-iij.
Liq. plumbi subacetatis diluti, f. ℥ j. M.

Shake before using. One similar to these may be used from twice to four times daily, after micturition.

Secondary Stage.—When the inflammatory symptoms reach a certain high grade and tend to remain there, it is well to recommend rest, and to apply leeches to the perinæum (not less than fifteen or twenty.) *Sandal-wood oil* or *copaiva* may now be given in increasing doses, up to the limits of tolerance of the stomach. Capsules are the most convenient form to use for either of these. The maximum dose must be maintained for a week. If improvement is not manifest by that time, *cubebs* should be tried instead of the balsam; or a combination. For chordee, *lupulin*, ʒj–iij on retiring, is of undoubted service; or:

896. ℞. Extracti opii aquosæ, gr. ij.
Camphoræ pulveris, gr. iv. M.

For two pills; one or both on retiring.

The urine should be kept dilute and alkaline, and the bladder emptied.

In the *decreasing stage*, hygiene and alkali should be continued, and the balsam or oil of sandal-wood pushed. If copaiba is well borne and properly administered, it is the most efficient of the anti-gonorrhœal remedies. Cubebs may best be given as the *oleo-resin* in capsules. Dr. BUMSTEAD'S formula for combining the two is:

897. ℞. Copaibæ, ℥ ij.
Magnesiæ, ℥ j.
Olei menthæ piperitæ, gtt. xx.
Pulveris cubebæ,
Bismuthi subnitratis, āā ℥ ij. M.
Divide into five-grain pills. Dose, five or ten.

Gleety Stage.—The urine must be kept mildly alkaline; the provocation of sexual excitement interdicted; one of the balsams or cubebs administered; a stimulating or astringent injection employed; and careful search must be made for the presence of stricture, which is a frequent cause of the extreme obstinacy of gleets.

Nearly all known drugs have been vaunted for injections in urethral discharges, but only a few hold their place. Of these may be mentioned *permanganate of potash* (gr. j–iij to f. ℥ j) alone, or combined with a small amount of sulphate of zinc; *sulphate of copper* (gr. j to f. ℥ j); *persulphate of iron* (℥ ss to f. ℥ vj); and finally alcohol, best employed in RICORD'S formula:

898. ℞. Vini rubri, f. ℥ ij.
Aquæ rosæ, f. ℥ iv. M.
The wine to be gradually increased until it is used pure.

Glycerine or morphia may be combined with any of the above formulæ with occasional advantage.

AUGUSTE CULLERIER, PARIS.

899. ℞. Copaibæ, f. ℥ v.
Cubebæ, ℥ iv.
Spiritûs menthæ piperitæ, q. s. M.
Electuary. From four to five drachms a day are given.

This formula is one of the most frequently employed at the Hôpital du Midi.

For the *abortive* treatment of gonorrhœa, our author uses large doses of copaiba (f. ℥ iv–v a day) or cubebs (℥ v–viij a day.) He considers them more valuable than any of the abortive injections. They are to be employed only, however, when the gonorrhœa is of recent date, when there is little or no pain, and where the discharge is not as yet muco-purulent.

Under favorable circumstances, when the abortive treatment is thus employed, the discharge will diminish or disappear in the course of four or five days. The treatment should not then be suspended, but, on the contrary, continue for several days after the cure is apparently complete. If this precaution be neglected, the inflammation may reappear. If, after from six to eight days, no improvement is manifest, it is useless to persist longer in this form of treatment. Astringent injections should not be combined with this use of the balsam. They have no advantage at this early period of the disease, and often keep up an amount of irritation which may interfere with the effect of the internal remedy.

When the inflammatory period of the gonorrhœa is over, CULLERIER advises injections to complete the cure.

The following injections are those most frequently prescribed at the Hôpital du Midi:

900. ℞. Zinci sulphatis,
Plumbi subacetatis, āā gr. xv.
Aquæ, f.℥ iv. M.

901. ℞. Aluminis, ℥ iss.
Aquæ, f.℥ iv. M.

902. ℞. Acidi tannici, gr. vij.
Aquæ, f.℥ j. M.

Two injections a day are sufficient. Before each injection the patient should urinate.

SILAS DURKEE, M. D., BOSTON.

903. ℞. Copaibæ, f.℥ iij.
Spiritûs ætheris nitrosi,
Tincturæ kino, āā f.℥ ss.
Morphiæ sulphatis, gr. iv.
Aquæ camphoræ, f.℥ ij. M.

One teaspoonful thrice daily.

Usually, an efficient check will be put to the gonorrhœa in eight or ten days by the use of this preparation.

904. ℞. Pulveris cubebæ, ℥ viij.
Pulveris aluminis, ℥ j.
Pulveris cinnamomi, ℥ j. M.

For thirty-two powders. One thrice daily.

This combination of cubebs and alum will usually diminish the urethral discharge in two or three days, and if the patient will observe a perfectly quiet state of the body, he will find that in eight or ten

days the gonorrhœa will be nearly at an end. The strictest avoidance of exercise constitutes an important element in the treatment of every case of gonorrhœa, and the patient should even keep in a recumbent posture in order to secure the best effects in the shortest time.

As with the balsam copaiba, so with cubebs; they should not be discontinued under a fortnight after the cessation of the urethral discharge.

The tincture is an elegant and convenient form of administering cubebs. It may be given in doses of f. ʒ j–ij four or five times a day, or combined thus:

905. ℞. Tincturæ cubebæ, f. ʒ ij.
Tincturæ cantharidis, f. ʒ iss.
Morphiæ sulphatis, gr. ij
Aquæ camphoræ, f. ʒ iij. M.
A dessertspoonful thrice daily, in half a gill of cold water.

Or the fluid extract may be used in this manner:

906. ℞. Extracti cubebæ fluidi, f. ʒ iv.
Morphiæ sulphatis, gr. ij.
Mucilaginis acaciæ,
Aquæ camphoræ, āā f. ʒ ij. M.

Our author also recommends the following formulæ of Drs. Druitt, Langston Parker, Beyran and Holmes Coote:

907. ℞. Copaibæ, f. ʒ ss.
Olei cubebæ, f. ʒ ss.
Liquoris potassæ, f. ʒ iij.
Spiritûs myristicæ, f. ʒ ss.
Aquæ camphoræ, f. ʒ j. M.
Two teaspoonfuls thrice daily.

The combination of copaiba with the oil of cubebs, as above, will sometimes be found to agree better with the stomach than the capsules or any other combination.

In chronic gonorrhœa, or gleet, the balsam and the cubebs may be advantageously combined with iron, as follows:

908. ℞. Pulveris cubebæ, ʒ ss.
Copaibæ, f. ʒ ij.
Ferri sulphatis, ʒ j.
Terebinthinæ olei, ʒ iij. M.
To be made into boluses of gr. x each. From fifteen to thirty a day; usefully employed in lax constitutions.

909. ℞. Pulveris cubebæ, ʒ j–ij.
Ferri carbonatis, ʒ ss–j. M.
For one powder, to be taken thrice daily.

The above is particularly useful after the acute symptoms have subsided.

Our author employs the following in gleet:

910. ℞. Tincturæ cantharidis,
Olei terebinthinæ, āā f.℥j.
Mucilaginis acaciæ, f.℥ij. M.

A teaspoonful thrice daily.

DR. N. GALLOIS, OF PARIS.

911. ℞. Acidi tannici, ℥j.
Opii pulveris, gr. iv.
Glycerinæ, q. s. M.

Make into *urethral suppositories*, which, soft in summer, are quite solid during the winter.

They are to be moistened with warm water and introduced into the urethra, where a piece of the length of about an inch and a half is to be allowed to remain. This quickly dissolves and turns into a whitened mass in mixing with the urethral mucus. Treated in this manner, it is said that the most violent cases cure in from one to three weeks.

912. ℞. Copaibæ, f.℥iv.
Spiritus menthæ piperitæ, ♏xx
Mel. despumatæ, f.℥iss.
Sacchari, ℥iss.
Aquæ destillatæ, f.℥iij. M.

Place the copaiba, the honey, the sugar and the water in a vessel, and warm over a slow fire, constantly stirring, to avoid a too great elevation of the temperature and to favor the division of the oleo-resin of copaiba. At the end of ten minutes remove from the fire, color the mixture and add the peppermint after cooling. The product thus obtained, nearly deprived of the odor of copaiba, is of a gelatinous consistence, and can be administered to those who cannot take the ordinary preparations.

DR. WILLIAM A. HAMMOND, NEW YORK.

In simple gonorrhœa, after the discharge is well established, reliance should be placed upon injections. Those recommended in syphilitic gonorrhœa will be found most advantageous.

The following mixture of copaiba is capable of doing more good than the uncombined balsam, and it is not much more disagreeable to the taste or stomach:

913. ℞. Copaibæ, f.℥ij.
Spiritus ætheris nitrosi, f.℥j.
Tincturæ opii,
Tincturæ iodinii, āā f.℥j.
Magnesiæ, ℥ij.
Mucilaginis acaciæ, f.℥v. M.
One or two teaspoonfuls thrice daily.

No internal treatment should be depended upon to the exclusion of injections.

Stimulants should be avoided, as should also *salt meat.*

In the management of the chronic stage of simple gonorrhœa, or *gleet*, the affected individual should be placed upon a good, plain, nutritious diet, and the mind and body pleasantly and systematically employed. The greatest benefit is derived from cold plunge-baths, followed by frictions of the skin with coarse towels or hair-brushes. As internal remedies, use:

914. ℞. Ferri sulphatis, gr. ij.
Quiniæ sulphatis, gr. ss. M.
For one pill thrice daily.

The oxalate or citrate of iron may be substituted in the same dose. In adition, our author has derived great benefit from the use of the following recipe:

915. ℞. Tincturæ cantharidis, f.℥ss.
Strychniæ, gr. j.
Syrupi limonis, f.℥iij. M.
A teaspoonful morning and evening.

Injections should be persevered with, changing one for another, as they lose their effect.

In his late monograph on gleet,

DR. J. C. O. WILL, OF LONDON,

Recommends, as the best and safest of all remedies for the cure of gleet, "the passage, once or twice a week, of a cold, well-oiled metallic bougie, combined with the internal use of cantharides or ergot."

MR. BERKELEY HILL, F. R. C. S., LONDON.

In the early stage, copaiba and cubebs are not beneficial, and only two injections are of any service, viz., half-hourly injections of tepid water, or hourly injections of alum or sulphate of zinc, gr. ¼ to aquæ

f. ℥ j. The former are often useless, and the latter, if they increase the irritation, are to be stopped.

SUPPOSITORY FOR CHORDEE.

916. ℞. Morphiæ sulphatis, gr. ½–ss.
Butyri cocoæ, gr. x. M.
To be passed into the rectum on going to bed.

When the pain is violent, thirty to forty drops of tinctura opii, in a wineglassful of decoction of starch, should be injected.

Our author has repeatedly found of service in chronic gonorrhœa the following capsule devised by Sir HENRY THOMSON:

917. ℞. Extracti cubebæ ætherialis,
Olei copaibæ, āā ♏ iv.
Picis liquidæ, ♏ ij. M.
For one capsule. One three or four times a day.

A very useful formula for injection is that of the "four sulphates:"

918. ℞. Zinci sulphatis,
Ferri sulphatis,
Cupri sulphatis,
Aluminis, āā gr. x.
Aquæ, f. ℥ viij. M.

The solution is not used in its full strength at first, but, the first day, is diluted with three times its bulk of water. If severe smarting follow, it is further diluted. Its strength is gradually increased until its full strength is used or the discharge stops. This being attained, it is diminished in strength step by step until plain water is reached. In this plan ten days should be employed.

DR. J. D. HILL, ROYAL FREE HOSPITAL, LONDON.

919. ℞. Glycerinæ acidi tannici, f. ℥ iij.
Olei olivæ,
Misturæ acaciæ, āā f. ℥ j. M.

This injection our author has extensively employed in hospital and private practice. It should be used in the following manner: The bladder having been first emptied, the bottle containing the lotion is to be well shaken, and about two drachms of it briskly poured into a saucer, and quickly drawn into a syringe. The penis is then to be held in the left hand, with the thumb and little finger respectively placed upon the superior und inferior portions of that organ, close to

the symphysis pubis, and the fore and middle fingers resting in like manner upon the superior and inferior surfaces of the glans, close to he meatus urinarius. The syringe, with the piston withdrawn, is now to be taken up with the right hand, and the nozzle, as far as its shoulder, carefully passed into the urethra. The thumb and little finger must press the root of the penis, to prevent the passage of any fluid beyond that point. When a sense of tension is felt, the syringe may be withdrawn; but the front fingers must previously be so applied as to compress the glans and thus prevent any escape of the fluid. Next, with the thumb and fore finger of the right hand, the fluid in the urethra is to be set in motion, and so kept for four or five miuntes. This will be attended with a gurgling noise, from the mixture of air and fluid. Thus, when the injection has insinuated itself within the folds and facunæ of the urethra, it is allowed to escape. In this manner, it is asserted, the bladder is protected on the one hand, and, on the other, there is a certainty of the fluid being applied to the whole of the affected surface.

Glycerinum acidi tannici, used in the above recipe, is officinal in the *British Pharmacopœia*. It is made by rubbing together in a mortar one ounce of tannic acid and four ounces of glycerine, then transferring the mixture to a porcelain dish, and applying a gentle heat until complete solution is effected.

M. Luc, a French military surgeon, uses in gonorrhœa, when the discharge is without pain, an injection of a thin paste of finely-powdered starch and hot water.

DR. FRANK F. MAURY, OF PHILADELPHIA.

The above abortive treatment is objectionable on account of its tendency to leave strictures.

The patient should avoid all sexual excitement; all alcoholic beverages (the least harmful is claret); highly-seasoned meats; asparagus; violent exertion. Locally a routine practice must be avoided. One thing, however, should never be neglected; that is, to teach the patient—

How to Make a Urethral Injection.—Let him first empty his bladder, then stand over a chamber, retract his foreskin, and hold his penis, with his thumb on one side and his finger on the other, so as to close the meatus against the nozzle of the syringe, never holding above and below, for that spreads the meatus. Then let him inject about a fluid

drachm, slowly and deliberately. There is no danger of forcing the injection into the bladder, and no pains need be taken to prevent it. After the injection is in, let it be gently worked backward and forward along the urethra, to distribute it nicely, and retain for a few minutes. Then let it come away, as much as will flow off readily.

The nozzle of the syringe should not be longer than about three-eights of an inch, because often the trouble is close to the orifice of the urethra, and a longer nozzle would prevent the injection coming well in contact with it.

This application is best made in the morning, after the daily stool, again about noon, and again about five or six o'clock; not just before bed-time, as is sometimes recommended. The manipulation tends to increase the tendency to chordee, and should not be made just before going to bed.

As for particular formulæ, one can use a mixture containing vegetable and mineral astringents, say:

920. ℞. Tincturæ matico,
Tincturæ catechu, ää f.℥j.
Extracti opii aquosi, gr. xvj.
Plumbi acetatis, gr. x–xij.
Glycerinæ, f.℥iv.
Aquæ rosæ, f.℥vss. M.

One may substitute for the acetate of lead sixteen grains of sulphate of zinc, or of the biborate of zinc.

There is another form of injection, which acts by making a coating for the inflamed membrane. It consists of bismuth held in suspension, which, when injected, gives a mechanical protection:

921. ℞. Bismuthi subnitratis, ℥ij.
Glycerinæ, f.℥iv.
Aquæ rosæ, f.℥vss. M.
Shake well when used.

And the following internally:

922. ℞. Tincturæ sanguinariæ,
Tincturæ kino,
Balsami copaibæ,
Spiritus ætheris nitrosi, ää f.℥j.
Olei gaultheriæ, f.℥j. M.
A teaspoonful every four hours. With these use large diluent drinks.

COMPLICATIONS AND SEQUELÆ OF GONORRHŒA.

GONORRHŒAL ORCHITIS.

GERMAN HOSPITAL, PHILADELPHIA.

At this institution, if epididymitis resulted, the patient is put at rest on his back, the testicles supported on a cushion, and cooling lotions applied, if there were acute inflammatory symptoms. Should the epididymitis become chronically indurated and indisposed to soften, then mercury is applied locally, either in the form of the simple ointment, or of that combined with the belladonna ointment, in the proportion of eight of the former to two of the latter. In place of the mercurial preparation, an ointment containing iodine is sometimes used. The following formula is one of the most common:

923. ℞. Unguenti iodinii, ʒ ij.
Extracti belladonnæ, gr. xx.
Adipis, ʒ ij. M.
Ointment. Apply externally twice daily.

ŒDEMA PRÆPUTII.

924. ℞. Plumbi acetatis, ℈ iv.
Aquæ, ♁ j. M.

Or,

925. ℞. Aluminis, ʒ viss.
Aquæ, ♁ j. M.

The œdematous organ is to be enveloped and lightly compressed by a linen bandage saturated with one of the above solutions.

PROSTATIC GLEET.

MR. BERKELEY HILL, F. R. C. S., OF LONDON.

An obstinate prostatic gleet is not an infrequent result of a neglected or ill-treated gonorrhœa. In this treatment Mr. Hill recommends that if there is much pain and nocturnal irritation, a very mild anodyne suppository passed into the rectum at bed-time should be ordered, such as one-third of a grain of extract of belladonna, a quarter of a grain of hydrochlorate of morphia, one grain of camphor and

ten grains of cocoa butter, melted together and cast into a conical shape. If the repeated use of the morphia interferes with the action of the liver, an occasional dose of calomel, with a little colocynth, should be given. While the discharge is whitish or opaque, two or three drops of copaiba in frequent doses is often useful; and when the prostate has lost tenderness if pressed by the finger, one or two drops of tincture of cantharides, in plain water, four times in twenty-four hours, is also sometimes magical in its effect. A good formula for the copaiba is:

926. R. Copaibæ, ♏ij.
Cinnamomi essentiæ,
Mucilaginis acaciæ, āā ♏xx.
Aquæ, f.℥j. M.
This amount four times daily.

When all the pain and spasmodic twitching of the compressor muscles have passed away, cubebs in moderate doses—say ten grains, four times daily—is sometimes useful to check the secretion completely.

For *local treatment*, he states that when considerable pain is felt if the finger is introduced into the rectum, and the prostate feels large and soft, leeches are useful—three or four applied by means of a leech-tube to the mucous membrane within the anus; or if the introduction of a foreign body causes pain, which is often the case, and the requisite skill be not at hand, twenty leeches applied to the perinæum are very beneficial. When the prostatic tenderness has subsided, cool hip-baths for five minutes morning and evening, beginning at 85° F., and gradually lowering the temperature to 50° F. by adding cold water, are useful. They may be continued several weeks with benefit. In continuous moderate counter-irritation, lauded by some surgeons in chronic prostatitis, he has no faith. He has used it over and over again, but could never satisfy himself that the repeated application of small blisters to the perinæum lessened the prostatitis. If it benefited the patient at all, it did so only by engaging his attention and satisfying him that "something was being done." Counter-irritation by means of caustic solution of iodine is useful when applied the following way: Paint the perinæum, the genito-crural folds and neighboring parts of the thighs, so that the area is as large as half a square foot, and thus raise a considerable amount of irritation, too great to allow the patient to walk about for some days. Such irritation sometimes removes all

the symptoms in a few hours, except the gleet, and that is then in a fair way to depart. But this favorable result is by no means constantly obtained; hence he avoids counter-irritation till he has tried other means.

In the "irritable" or "relaxed" prostate, which sometimes comes from this cause, sometimes from masturbation, unsatisfied desire, spermatorrhœa, etc., the treatment is first to allay the patient's fears, which are generally extravagant, inquire into his diet, and warn him to eat his meals slowly. If, as is often the case, an examination of his urine shows that the phosphates are freely deposited, the following formula will be appropriate:

927. ℞. Acidi nitrici diluti,
Tincturæ nucis vomicæ, āā gtt. x.
Aquæ, f.℥j. M.
This amount thrice daily

In regard to local treatment, examine the prostate with the finger; and if not specially tender, pass a flexible bullet-bougie along the urethra; and don't be alarmed by the amount of outcry it causes, or even should a drop of blood be found adhering to the end of the instrument when it is withdrawn. Of course the greatest gentleness must be used in passing the instrument. The pain, which is of a burning kind, disappears very quickly, and the patient, even if he have fainted from the nervous shock, in a few moments gets up and acknowledges that he feels no particular inconvenience from the operation. In the next three or four days he experiences great improvement; the amount of discharge is less; there is less aching in the sacrum and thighs after walking; and consequently his spirits are better, and his several nervous disorders trouble him far less; so that on his next visit he will usually allow the bougie to be passed again, and may even beg for it spontaneously. After the first introduction the spasm is commonly much less, and when it has passed a few times the amount of suffering is very bearable. In order to reduce the pain to a minimum, Mr. HILL uses at first flexible black French bougies with tapering ends, till the irritation has considerably lessened, when a steel No. 10 sound, with short curve, is generally the most effective instrument. So long as any tenderness or spasm remains, the sound should be passed once a week, if the good effect last so long, twice a week if the dull pain and sense of weight begin to revive after three or four days have elapsed. It now and then happens that the passing

of a sound becomes real agony. In such cases he is accustomed to pass the catheter, and throw in from ten to fifteen drops of solution of nitrate of silver, (twenty grains to the ounce,) first rendering the patient insensible by chloroform, or, better still, by gas and ether, and emptying the bladder, if the patient has not already done so in the natural way, before the injection is thrown in. While he is still unconscious, it is well to inject one-third of a grain of morphia under the skin, to maintain insensibility for the three or four hours that elapse before the pain of the injection subsides.

This injection is also useful in chronic prostatitis, and must be carried out in the same way. For this it may need repetition more than once, or even twice; but repetition is rarely, if ever, needed for simple irritable prostate, as after one injection the slight tenderness remaining is easily controlled by the regular introduction of a bougie about once a fortnight, which the patient may learn to do for himself. When the digestion has been restored or greatly improved and the local irritability has subsided, the recovery may be made complete by sending the patient on a long sea voyage. By such means his body is invigorated, his mind fully occupied, and he is removed from temptation to sexual excitement. In a year or so, by the time he is fitted for sexual intercourse in marriage, he should seek that as the best safeguard against relapse into his old condition.

GONORRHŒAL RHEUMATISM.

ALFRED BARRING GARROD, M. D., F. R. S.

This author says that when gonorrhœal rheumatism is treated vigorously in the commencement of an attack, the joints may become affected in a slight degree only. If there be much constitutional disturbance and inflammatory action, purgatives may be exhibited and a small quantity of blood may be taken from the arm; while local fomentations may be employed, and a splint of gutta-percha to keep the affected joint perfectly at rest. After venesection, a full dose of opium gives great relief, and if it is administered with ipecacuanha, as in Dover's powder, the secretion of the skin is increased. The sweating which is thus produced is beneficial, but increased action of the skin is best promoted by the *Turkish bath*. Sometimes the pains in the joints cease entirely in the bath.

In an acute attack, abstinence from flesh meat, as well as from fermented and distilled liquors, is absolutely necessary.

When the inflammation tends to become chronic, *iodide of potassium* may be given with advantage, gr. xxx–xl daily. It is preferable to abstract a small quantity of blood from a vein than to apply leeches to the inflamed joints, as these sometimes produce suppuration in the cellular tissue.

After the first or second attack, or when the patient is debilitated, the treatment should be of a moderately stimulant or tonic character; depletion will aggravate all the symptoms and increase the effusion. Opium may be given freely, and iodide of potassium in small doses. Gutta-percha splints should always be used during the period of effusion, to prevent motion.

As soon as the pain and swelling cease, gentle frictions with shampooing should be employed to restore mobility. Much time will probably be required to effect this object, and it may be necessary, if adhesions have formed, to flex the limbs forcibly after chloroform has been inhaled. In many cases mobility can be entirely restored, even after anchylosis has appeared to be complete.

DR. J. F. M. GEDDINGS, OF SOUTH CAROLINA.

This practitioner states that in the first place the gonorrhœal discharge should be suspended by appropriate injections. The following formula, suggested by NIEMEYER, he has found very efficacious in simple gonorrhœa, and there is no reason why it may not prove equally so in complicated cases:

928. ℞. Acid. tannic., grs. xxx-lx.
Vini gallici rub., f.℥ ix. M.
Ft. inject.
To be used three times a day.

Concerning the use of balsam copaivæ, he is extremely dubious. Highly recommended by LEBERT and others, the remedy seems contra-indicated by the possibility of its inducing, in certain subjects, symptoms simulating those of the disease under consideration.

The local treatment of the affected joints requires absolute rest, leeches, and the cold or warm douche, according to the susceptibilities of the patient. After the acute symptoms are subdued, no remedy exercises a more beneficial influence than *the actual cautery*, applied lightly to many points around the joint, so as only to involve the epidermis and superficial layer of the chorion. Painting with tinct.

iodine, blisters, frictions with oil, etc., may be substituted, but with less effect.

When the swelling has somewhat subsided, but the joint still remains stiff and painful, the cold douche, with frictions, gives excellent results. In indolent cases, where there is formation of much new tissue in and around the joint, moderate compression and an immovable apparatus should be used. Should adhesions have formed between the articulating ends of the bones, causing spurious anchylosis, Langenbeck's method of forcible extension and flexion in the chloroform narcosis should be practiced. This practice should not, however, be resorted to until the inflammatory symptoms have ceased. In cases where there is evidence of purulent accumulation, with caries of the ends of the bones, the question of amputation must be considered. PRICHARD reports a case where amputation of the thigh had to be practiced for suppuration of the knee, affected with gonorrhœal rheumatism.

PROF. RICORD, PARIS.

929. ℞. Tincturæ scillæ,
Spiritus camphoræ,
Vini opii, āā f.℥ v. M.

A resolvent liniment, to be applied, in fomentations, to joints affected with gonorrhœal arthritis, when the pains have nearly disappeared.

RÉSUMÉ OF REMEDIES.

Acacia. Thin mucilage makes an excellent injection, as:

930. ℞. Mucilaginis acaciæ, f.℥ iij.
Carbolic. acid., f.℥ ij.
Aquam, ad f.℥ xij. M.

For urethral injection—f.℥ ss as needed.

Acetum. Cider vinegar, more or less diluted, has been found of good service in chronic gleet.

Alumen. A saturated solution of burnt alum, used as an injection three times a day is commended by Dr. A. DE VOS, of Belgium, as the best of all injections in gonorrhœa when the acute symptoms are subsiding.

Argenti Nitras. The employment of this agent in gonorrhœa has been much discussed. The abortive method by strong injections (gr. xxx-℥j, to water f.℥j,) has deservedly fallen into disrepute. This strength may, however, be safely applied to the vagina in specific vaginitis. It should be painted on the part with a brush through a speculum. In the male, the strength in the first stage should not be beyond gr. ¼ to the ounce of water. This may be used every three hours until the substitutive inflammation has been

established. In *gonorrhœal balanitis*, Dr. DARVOSKY recommends drawing back the prepuce in order to thoroughly cleanse the parts and to apply the medicine directly upon the inflamed surface. After all the secretion is washed off, the whole everted surface of the prepuce is penciled over with a solution of nitras argenti (thirty grains to the ounce); a small piece of lint saturated with the same lotion is then laid over the glans penis, and the prepuce drawn over it. During the first days the gray eschar produced by this cauterization is very quickly thrown off, wherefore the application of the nitras argenti should be repeated several times daily. Afterward, when the œdema of the prepuce has subsided and the discharge is greatly diminished, the eschar adheres for one day or longer, and the remedy must not be re-applied till the eschar is thrown off.

Belladonna is of service in *chordee* and the genesic erethism which precedes the disease. Dr. VAN DEN CORPUT prescribes:

931. ℞. Extracti belladonnæ, gr. ij.
Camphoræ,
Lupulinæ, āā gr. xij. M.
For eight pills. From two to four at a night.

Dr. BUMSTEAD uses the ointment in epididymitis.

Bismuthi Subnitras is a popular ingredient in injections. It is best suspended in thin mucilage. Its action is mechanical, in keeping the inflamed surfaces asunder. The solution must be prepared fresh every day, as it sours and becomes irritating.

Chloral, Hydrate of, has been used as an injection, gr. v–x to aquæ f.℥j.

Cadmii Sulphas. This has been used in acute gonorrhœa, gr. j to aquæ f.℥j–iij.

Camphora. Professor RICORD'S favorite remedy in *chordee* and *painful erections:*

932. ℞. Camphoræ pulvis,
Lactucarii, āā gr. ij. M.
This amount in a pill every hour from supper until bed-time.

Dr. DURKEE gives f.℥j of the spiritus camphoræ in sweetened milk on going to bed. If the patient wakes with the chordee, he is to repeat the dose.

Carbolicum Acidum has been found efficient in recent cases. Mr. GEORGE ASHMEAD, L. R. C. S., Edinburgh, commends (*The Lancet*, Dec., 1871,) the following:

933. ℞. Acidi tannici, ℈j.
Acidi carbolici, ℈ij.
Glycerinæ, f.℥j.
Aquæ, f.℥vij. M.
Half an ounce of this, as an injection, thrice daily.

Colchicum has been recommended by Sir BENJAMIN BRODIE in the gonorrhœa of gouty subjects. He also gave ♏ xxx of the wine at night for *chordee.*

Copaiba is regarded by many as a specific in gonorrhœa. It is contra-indicated by hyperæmia, and should not be exhibited until the acute symptoms have been

conquered, and when the discharge is whitish and thick. Mr. BERKELEY HILL uses the following:

934. ℞. Copaibæ, ℥j.
Mucilaginis acaciæ, f.℥ij.
Aquæ cinnamomi, f.℥viij. M.
Tablespoonful thrice daily.

The following is given by Dr. BUMSTEAD:

935. ℞. Copaibæ, f.℥j.
Liquor. potass., f.℥ij.
Extr. glycrrh., ℥ss.
Spts. æther. nitr., f.℥j.
Syrup. acaciæ, f.℥vj.
Ol. gaulther., gtt. xvj. M.

Mix the copaiva and the liquor potassæ and the extract of liquorice and spirits of nitre first separately, and then add the other ingredients. Dose, a tablespoonful after each meal.

This drug has been often used as an injection. LANGLEBERT employs an *aqua copaibæ*. Dr. DICK, of London, recommends:

936. ℞. Olei copaibæ, f.℥j.
Pulveris acaciæ, ℥ij.
Aquæ, f.℥vj. M.

In subacute gonorrhœa and in gleet, this injection is to be used twice a day for a few days; afterward, more frequently.

The formula of VELPEAU is as follows:

937. ℞. Copaibæ, f.℥ij.
Tincturæ opii, f.℥ss.
Mucilaginis acaciæ, f.℥iss. M.
For an injection, to be repeated twice or thrice a day.

It is asserted that successful results have been obtained in this manner in cases in which the balsam could not be tolerated by the stomach.

Creosote has been administered in doses of gtt. j–iij, thrice daily. (*Half-Yearly Compendium*, January, 1874.)

Cubeba is often indispensable in gonorrhœa. It may be given in any and all stages of the disease with benefit. A pleasant form is the oleo-resin, gtt. x–xxx on a lump of sugar, three or four times a day. Some prefer the pill form, in which it may often be advantageously combined with copaiba and sandal-wood oil.

938. ℞. Cubebæ olei,
Copaibæ olei,
Santali olei, āā f.℥j.
Magnesiæ, ℥ij. M.
For sixty pills. Six to eight a day.

Cupri Acetas is preferred by some. Dr. REECE, of Paris, uses:

939. ℞. Plumbi acetatis,
Cupri acetatis, āā gr. ix.
Acidi acetici, gtt. v.
Aquæ, f.℥ vij. M.
Use as an urethral injection, thrice daily.

Cupri Sulphas is a valuable remedy. In a very weak solution (gr.j to aquæ f.℥j) it may be used as an abortive. After the acute stage has passed, the following is a useful formula:

940. ℞. Cupri sulphatis, gr. iv.
Morphiæ sulphatis, gr. viij.
Liquoris plumbi subacetatis, f.℥j.
Aquæ rosæ, f.℥iv. M.
About half an ounce thrice daily, as an injection.

Erigeron Canadensis. The oil of the Canada fleabane, in doses of gtt. v–xx every two or three hours, has been found by Dr. G. A. STARKE, of Milwaukee, (*Canada Medical and Surgical Journal*, May, 1876,) to cure gonorrhœa in from two to six days. A good formula is:

941. ℞. Ol. erigeron Canadensis, ℥iij.
Ol. lig. santal., ℥iss.
Spt. vini rect., ℥j.
Syr. simplicis, ad ℥iij. M.
Flavor with the essence of wintergreen. Shake the bottle before using. Teaspoonful every two, three or four hours, as deemed necessary.

Ferri Chloridi Tinctura has been found valuable as an internal remedy in the gleet of anæmic subjects.

Ferri Subsulphatis Liquor, in weak solution, gtt. v–x to aquæ f.℥j, has been used with advantage in some obstinate cases of gleet

Gurjun Balsam has been used recently in Paris. It is said to act more rapidly than copaiba. The following is VIDAL'S formula, as used at the Hospital Saint-Louis: Gurjun balsam, 4 grammes (1 drachm); gum, 4 grammes (1 drachm); infusion of star anise, 40 grammes (10 drachms.) To be divided into two doses, and taken immediately before meals.

Hydrastin. The yellow root has been highly lauded in gonorrhœa. Profesor R. BARTHOLOW says he has seen no injection so frequently successful as:

942. ℞. Hydrastiæ, ℥j.
Mucilaginis acaciæ, f.℥iv. M.
A half-ounce as an injection.

Dr. J. N. BREDIN (*Medical Times*, Sept., 1874,) commends:

943. ℞. Hydrastin, ℥j.
Morphiæ liquoris (Magendie), f.℥ij.
Mucilaginis acaciæ, f.℥iv. M.
Employ three times a day.

Iodoform. According to Dr. ALVARES, Italy, iodoform ointment relieves the pain of blennorrhagic orchitis better than any other application. This result is obtained at the end of one or two hours.

Kava Kava, the root of the *Piper methysticum*, in form of infusion, has long been used in the islands of the Pacific ocean as an agreeable popular remedy for gonorrhœa. It has lately been introduced into this country and France. A drachm and a half is macerated for five minutes in a pint of water, with frequent agitation. The infusion is filtered and given in two doses daily, before and after meals, until a cure is effected. Twenty minutes after the dose the patient experiences a pressing desire to urinate. The urine passed is large in quantity and of a clear, watery appearance. The smarting which is experienced at first in the discharge is removed, and a feeling of comfort supervenes. A cure is effected in from ten to twelve days. In addition to this the kava acts as a bitter tonic, is agreeable to take, promotes the appetite, does not incommode the digestive organs, and, finally, occasions neither diarrhœa nor costiveness.

Kaolin, or white clay, suspended in water, was introduced as an injection by Dr. F. W. GODON, of New York. He mixes the earth with water to a thin paste, and throws from one to three drachms into the urethra once or twice a day. The disease yields in five or six days.

Nitricum Acidum makes an excellent injection in gleet. The strength of the solution should be gtt. ij to water f.℥j, of which f.℥j–ij should be thrown up frequently.

Opium and its alkaloids render important service in the acute inflammatory stage of gonorrhœa. The following is a good formula:

944. ℞. Extracti opii aquosi, gr. vij.
Liquoris plumbi subacetatis, f.℥j.
Glycerinæ, f.℥ij.
Aquæ destillatæ, ad f.℥iv. M.

Use as an injection, two or three times a day, to lessen the painful smarting from micturition.

Plumbi Acetas forms a cooling and astringent injection. The following combination has been found excellent, in spite of the chemical change which takes place in it:

945. ℞. Liquoris plumbi subacetatis diluti, f.℥iv.
Zinci sulphatis, gr. viij. M.

As an injection in inflammatory gonorrhœa.

Potassii Bromidum is a valuable injection in the acute stage:

946. ℞. Potassii bromidi, ℥iss.
Glycerinæ, f.℥ijss.
Aquæ, f.℥iv. M.

Use lukewarm, twice daily, in acute gonorrhœa.

It has also been given internally by Dr. J. W. BLIGH, of Canada:

947. ℞. Potassii bicarbonatis, ℥j.
Potassii bromidi, ℥ij.
Tincturæ hyoscyami, f.℥ss.
Aquæ camphoræ, f.℥vss. M.
One ounce thrice daily, on an empty stomach.

Dr. B. adds that when there is any disposition to painful erections of chordee, a draft containing about half a drachm of the bromide in an ounce of camphor mixture, administered at bed-time, will be found to allay this tendency almost to a certainty. In this combination its effect seems magical, and has only to be tried to be recognized as a boon of inestimable value.

Potassii Chloras is especially useful in specific vaginitis. A useful combination of the potash salts is:

948. ℞. Potassii chloratis, ℥iv.
Potassii permanganatis, gr. x.
Aquæ, Oj. M.
Inject a teaspoonful, night and morning, in vaginitis.

Potassii Permanganas is extolled by Dr. WILLIAM A. HAMMOND. He believes it has the power of destroying the contagious property of the secretion from the mucous membrane:

949. ℞. Potassii permanganatis, gr. ¼–ij.
Aquæ, f.℥j. M.
The weaker solution should be used first, and gradually increased. Eight or ten injections should be made in twenty-four hours.

Pulsatilla, gtt. j of the mother tincture every hour, is said by Dr. PIFFARD to relieve the pain of gonorrhœal epididymitis. (*Med. Record*, January, 1878.)

Quiniæ Sulphas has been used with great advantage in the acute stage, where there is much scalding and a profuse discharge:

950. ℞. Quiniæ sulphatis, gr. xvj.
Acidi sulphurici diluti, f.℥j.
Aquæ rosæ, f.℥viij. M.
Use half an ounce twice daily, as an injection.

Dr. HABERKORN, of Berlin, recommends the following in teaspoonful injections, thrown into the urethra two or three times daily.

951. ℞. Quiniæ sulphatis, gr. vj.
Glycerinæ, ℥ij.
Aquæ, ℥vj.
Acidi sulphurici diluti, gtt. v. M.

Santalum. Sandal-wood oil has of late been prominently urged as a cure for gonorrhœa. It is given in capsules, or in the following prescription, which is that of Dr. THOMAS B. HENDERSON, who introduced this product to notice:

952. ℞. Olei santali, gtt. xx-l.
Alcoholis, f.℥j.
Olei cinnamomi, gtt. ij-v. M.
This amount three times a day, in water.

Dr. FRANK F. MAURY gives gtt. xv, thrice daily, on sugar. This remedy sometimes causes vertigo, of which the patient should be notified.

BERKELEY HILL recommends the following formula:

953. ℞. Olei santali, f.ʒ ss.
Liquoris potassæ, f.ʒ j.
Aquæ menthæ piperitæ, f.ʒ iv. M.
A dessertspoonful thrice daily.

Tannicum Acidum, dusted on the part, is the best application in *balanitis, blennorrhœa of the glans*, and *herpes præputialis*. It may also be dissolved in glycerine, and applied with a brush. As an injection in subacute gonorrhœa, RICORD prescribes:

954. ℞. Acidi tannici, ʒ ss.
Vini rubri, f.ʒ viij. M.

A favorite combination with Mr. WILLIAM ACTON, of London, was:

955. ℞. Acidi tannici,
Zinci sulphatis, āā gr. ij.
Aquæ, f.ʒ ij. M.
This amount to be used repeatedly during the day as an abortive injection.

Terebinthinæ Oleum, in small doses internally, frequently hastens the cure of the discharge when it is accompanied with an atonic condition of the parts. Ten to fifteen drops in globules may be prescribed.

Zinci Biboras has been recently used with success in injections, gr. ij to aquæ f.ʒ j.

Zinci Chloridi, gr. j to water f.ʒ j, is useful in gleet.

Zinci Sulphas, a popular astringent ingredient, gr. j-iij to aquæ rosæ f.ʒ j, for injections.

EXTERNAL MEASURES.

Catheterism, by medicated bougies, is practiced by many surgeons in obstinate gleet. It is usually painful, and should be adopted cautiously. The following ointments may be used to cover bougies of wax or rubber:

956. ℞. Argenti nitras, gr. xv–xxx.
Adipis, ʒ j. M.

957. ℞. Acidi tannici, ʒ j.
Adipis, ʒ j. M.

958. ℞. Hydrargyri chloridi mitis, ʒ ss.
Adipis, ʒ j. M.

959. ℞. Potassii iodidi, ʒ j.
Adipis, ʒ j. M.

960. ℞. Extracti belladonnæ, ℈ iv.
Adipis, ʒ j. M.

Dr. S. D. GROSS thinks that in obstinate cases of gleet there is nothing in the world so good as the introduction of nickel-plated conical bougies and the simple overstretching of the inflamed parts.

Counter-irritation has frequently been employed in chronic urethritis. *Blisters* may be applied high up on the inner surface of the thigh. Dr. DURKEE extols them highly when there is no stricture present. In obstinate cases, the perineal integument may be strongly irritated with compound tincture of iodine with advantage.

SYPHILIS.

DR. M'CALL ANDERSON, ENGLAND.

This author is convinced that mercury is indispensable in constitutional syphilis, and believes that the patient should be brought fairly under the influence of the drug, although in no case should salivation be produced. His favorite formula for its exhibition is:

961. ℞. Potassii iodidi, ʒj.
Hydrargyri chloridi corrosivi, gr. ij.
Potassii chloratis, ʒss.
Infusi quassiæ, f.ʒ viij. M.
One or two teaspoonfuls after each meal.

WILLIAM AITKEN, M. D., EDINBURGH.

962. ℞. Hydrargyri chloridi corrosivi, gr. j.
Potassii iodidi, gr. xxx.
Liquoris potassæ arsenitis, ♏xxxvj.
Alcoholis, fʒj.
Extracti sarsaparillæ fluidi, f.ʒ iij.
Aquæ cinnamomi, ad f.ʒ xij. M.
Two tablespoonfuls three times a day, after meals, in the treatment of some of the more intractable forms of syphilitic squamæ.

JOHN K. BARTON, M. D. (DUBLIN), F. R. C. S. I., ETC.

Our author recommends mercury as generally necessary in the first and second stages of the disease, though, with RICORD, he believes its action is limited to causing the disappearance of the symptoms present

when it is administered, and that it cannot be considered capable of neutralizing the poison. He lays great stress upon its gradual introduction into the system, and, in common with COLLES, BRODIE and SIGMUND prefers that this should be effected by inunction.

The patient's diet and daily habits should in the first place be regulated; the former should consist of meat once daily, without any stimulants beyond beer or porter, sometimes better without any at all. He should keep regular and early hours, going to his bed not later than ten o'clock, and not rising before eight in the morning; during the day he may be engaged in business, if it be not of a laborious or exciting description.

963. R. Unguenti hydrargyri, ℥j.

Of this half a drachm should be rubbed in each morning after breakfast for twenty minutes or half an hour. The morning is the best time, because then the patient is the most vigorous; and besides, if rubbed at night, the heat and perspiration produced by lying in bed will cause a considerable loss of the ointment, and the patient breathes an atmosphere loaded with mercury. Unless the full time mentioned be given to the rubbing, half the ointment will be inefficient It is usually necessary to impress the importance of this upon the patient, who, however, in a very short time lends a willing aid to the surgeon, finding his symptoms disappearing gradually, and his general health and strength improving rather than decreasing.

The inside of the thigh and popliteal space is the region where the inunction can be practiced. The patient should be told to rub in on each thigh upon alternate mornings, carefully washing off the old ointment with warm water and soap before commencing the new inunction; this prevents the skin from becoming irritated, and mercurial eczema appearing; if, however, a few scattered pustules do appear, the rubbing should be applied to the axillæ for a time. He is in the habit of directing the patient to take a hot-air or Turkish bath once or twice a week during treatment, and finds it not only preserves the skin from irritation by thoroughly cleansing it, but also facilitates the action of the mercury; patients, including those in hospital, always express a sense of comfort and relief from the use of the bath.

Many cases, particularly those belonging to the first division of the tertiary stage, are most benefited by a combination of mercury and

iodide of potassium. For this purpose add to the recipe gr. $\frac{1}{16}$ to $\frac{1}{12}$ of the corrosive chloride, or the biniodide of mercury, to each dose.

When our author employs mercury internally in secondary syphilis, he considers the following a good combination:

964. ℞. Pilulæ hydrargyri, ʒj.
Extracti opii, gr. v. M.
For twenty pills. One of these daily will be as good internal treatment as is possible.

Iron or quinine may at times be advantageously combined with some of the preparations of mercury, particularly when marked symptoms of anæmia show themselves at the commencement of the secondary period, which is very frequently the case in women.

965. ℞. Pilulæ hydrargyri, gr. xx.
Ferri sulphatis exsiccatæ, gr. x.
Extracti opii, gr. v. M.
For twenty pills.

966. ℞. Hydrargyri cum cretâ,
Quiniæ sulphatis, āā ℈j.
Extracti opii, gr. iij. M.
For ten pills.

The special treatment for *secondary ulceration of the throat* is:

967. ℞. Argenti nitratis, gr. xxx–xl.
Aquæ destillatæ, f.ʒj. M.

To be freely applied over the velum and back of the pharynx every day, or every other day, while any ulceration or redness continues. The solution may be used with the spray producer.

If toward the close of the secondary period sore throat re-appears, as it often does, it then does not yield so rapidly, and it will be necessary to prescribe the following mixture, which will quickly cause it to heal:

968. ℞. Potassii iodidi, ℈ij.
Potassii chloratis, ℈iv.
Aquæ, f.ʒviij. M.
Two tablespoonfuls thrice daily.

In the tertiary stage, our author employs iodide of potassium, in doses of from eight to ten grains thrice daily. A salt of ammonia added to the solution seems to increase the activity of the iodide; thus:

969. ℞. Potassii iodidi, ʒiv.
Ammoniæ muriatis, ʒij.
Tincturæ cinchonæ compositæ, f.ʒiv. M.
A teaspoonful in a wineglassful of water, thrice daily.

FREEMAN J. BUMSTEAD, M. D., NEW YORK.

970. ℞. Hydrargyri chloridi mitis, gr. xxxvj.
Tincturæ opii, f.ʒj.
Cerati simplicis, f.ʒj. M.

For application to chancre when an unctuous dressing is required. It is much used in French hospitals. Unguents are less desirable than lotions, and should only be employed when the evaporation of a water-dressing cannot be prevented even with the assistance of oiled silk and glycerine, as may happen from the position of the sore, and during a journey, etc.

In most cases the lotion may consist of simple water or glycerine, When medicated, such ingredients should, as a general rule, be added as will not leave a deposit, or change the aspect of the sore, and thus render its condition obscure. The following may be used:

971. ℞. Acidi nitrici diluti, f.ʒj.
Aquæ, f.ʒviij. M.

The strength may be varied with the sensibility of the part. When the sore is situated upon the external integument, the dressing should be covered with oil silk.

Chancres located beneath the prepuce may be dressed with dry lint, which will be sufficiently moistened by the natural secretion of the part. Indurated chancres are not liable to give rise to successives sores in the neighborhood, and hence astringents and disinfectants are rarely required. When the chancre assumes an excavated form, as is commonly seen in the furrow at the base of the glans, scraped lint is preferable to dry linen, since it is a better absorbent.

The frequency with which local applications are to be changed must be determined by the amount of secretion. A second dressing should be substituted before the first is soaked with the discharge. The dressing of the most uncomplicated chancres need be renewed only two or three times a day; but phagedenic ulcers require a much greater frequency.

972. ℞. Ferri et potassii tartratis, ℥ ss.
Syrupi,
Aquæ, āā f.℥ iij. M.

From two teaspoonfuls to a tablespoonful three times a day, within an hour after meals, in phagedenic chancres, and a lotion containing the same salt to be applied to the ulcer.

RICORD calls this preparation the "born enemy" of phagedena.

Rules for Giving Mercury.—Avoid mercury in all chancroids and all doubtful cases. Even in well-marked cases of true chancre it is better to defer the administration of mercury until secondary symptoms appear. It should be used, however, if the chancre assumes a phagedenic form, or if circumstances demand that the sore be speedily healed.

When giving mercury, do so actively, and for short periods, rather than in small and long-continued doses.

The corrosive chloride is the least desirable of all the preparations for internal administration. He prefers either the pilulæ hydrargyri or the protiodide. The latter should be given half an hour or an hour after meals, as it is irritating to some stomachs. He most frequently employs:

973. ℞. Mass. pilulæ hydrargyri, gr. ij-iij.
Ferri sulphatis exsiccatæ, gr. j. M.

This amount, in a pill, three or four times a day, one hour after eating.

BERKELEY HILL, M. D., LONDON, F. R. C. S., ETC.

Our author states that in the treatment of soft chancres the first thing is to remove general causes of irritation, such as too stimulating wine, and especially venery. All severe exercise must be relinquished; in fact, confinement to the house for some days is often time gained by the progress the sore makes with rest. While the wound is healing the patient should always avoid standing long at a time, to lessen the risk of bubo; the horizontal position, moreover, greatly promotes healing the sore. If erections at night are troublesome, they may often be prevented by the patient's last meal being a light one, taken two or three hours before bed-time. For persons of ordinary health it is not necessary to do more than this; but if patients are exhausted or in a debilitated condition, ordinary rules for improvement of the health are necessary; quiet rest, with good diet and stimulants, must be freely given. The digestion may be invigorated by tonics, such as:

974. ℞. Acidi nitrici diluti, f.℥j.
Extracti cinchonæ fluidi, f.℥ij M.
From thirty to forty-five drops, in water, thrice daily.

Or,

975. ℞. Tincturæ ferri chloridi,
Spiritûs chloroformi,
Glycerinæ, ää f.℥j. M.
A teaspoonful thrice daily, in water.

LOCAL TREATMENT OF THE SORES.

Most sores need only cleanliness to allay irritation and induce them to granulate. The sore should be washed three or four times a day while the discharge is abundant, and covered with pieces of lint dipped in cold water, over which oil silk should be wrapped, if the sore is situated in an outward part, like the dorsum penis or groin. If the patient is a man, he should be directed to support the penis in a suspensory bandage or handkerchief against the abdomen, never to let it hang down, and to be particular that the dress is loose enough not to chafe the parts in walking. If the sore is underneath the foreskin, the lint should be so interposed that the skin does not touch it, both to prevent the sore being chafed and to avoid the formation of fresh ulcers.

As chancres may excite a bubo at any period of their existence, destruction of their surface with caustic may prevent this consequence whenever it is employed. Still, this advantage is not sufficient in practice to require the invariable use of caustics, as the chance of a particular sore not being accompanied by a bubo is two to one, even when left to run its course. Besides this, it is often exceedingly difficult to destroy several sores thoroughly by one application of caustic; hence the patient, after having undergone all the suffering and inconvenience of cauterization, may be disappointed on finding, in a few days, his sore assume its original character.

Among the most effectual caustics is one RICORD prefers. He makes a paste of powdered charcoal and strong oil of vitriol, which he lays on and rubs into the chancre. In a few minutes the surface is destroyed, and forms an eschar, or crust, which falls off in a week, leaving the sore a simple granulating surface. It is a very effective remedy, being not liable to overflow the sides of the ulcer and attack the healthy skin, as is the case with liquid caustics. But it is not

always at hand, hence less convenient than another—the *strongest nitric acid.*

The best way to use this is to daub it with a glass brush over the floor and edges of the ulcer, and allow it to soak well into the surface of the sore for a few minutes, before the excess of acid is neutralized with a little carbonate of soda dissolved in water. The skin surrounding the ulcer should be protected by grease, but the edges may be left clear for the action of the caustic. The chloride of zinc and caustic potash are slower in action, and must be left longer in contact with the sore, or they will not penetrate deeply enough to destroy it altogether. The actual cautery, by hot iron or galvanic wire, is at times very useful when a large amount of tissue has to be destroyed; otherwise it is not preferable to chemical caustics, while it alarms the patient much more than the latter. When the caustic has done its work and the excess is washed away with cold water, the sore should be wrapped in wet lint, and the pain, which often lasts several hours, can be assuaged by the constant application of ice-cold water. The eschar usually separates in four or five days, and leaves a clean granulating surface.

A favorite mixture of our author, in the late form of the disease, is the freshly-formed red oxide of mercury, which he makes according to the following formula:

976. ℞. Hydrargyri chloridi corrosivi, gr. iij.
Potassii iodidi, ℈ v.
Ammonii carbonatis, ʒj.
Tincturæ cinchonæ compositæ,
Aquæ, āā f.ʒ iv. M.
A teaspoonful thrice daily, half an hour before meals.

E. L. KEYES, M. D., NEW YORK.*

This writer advocates the use of mercury in small, *tonic* doses. He does not think it worth while to commence the treatment until positive signs of constitutional poisoning are manifest, such as induration of the post-cervical glands and the early cutaneous eruptions.

Any preparation of mercury may be used. The protiodide is perhaps the most convenient.

977. ℞. Hydrargyri protiodidi, ℈ j.
Tragacanthæ, q. s. M.
Make one hundred and twenty small pills.

**The Tonic Treatment of Syphilis.* New York. *Venereal Diseases,* 1880.

Or the following very bland or unirritating form:

978. ℞. Massæ pil. hydrarg., gr. l.
Make one hundred pills

Or the following, where the iron is applicable to anæmic conditions:

979. ℞. Hydrarg. bichloridi, gr. j.
Ferri redacti, gr. l.
Gum tragacanthæ,
Glycerinæ, āā q. s.
Make fifty pills.

Or the following fluid form:

980. ℞. Hydrargyri bichloridi, gr. j.
Tinct. ferri chloridi, f.ʒ iij.
Aquam, ad f.ʒ vj. M.
A teaspoonful.

Having decided which preparation to employ, the patient must be prepared for his mercurial course. His teeth must be repaired by a competent dentist, he must stop tobacco absolutely, and live a regular life. Thus prepared, let him commence with the dose given above, as follows:

One after each meal, thrice daily, for three days.

On the fourth day, double his mid-day dose; on the seventh day, double one of the other doses; on the tenth day, double the remaining dose; on the thirteenth day, triple the mid-day dose, and continue the increase in this manner until there is very positive evidence of irritation in the intestine, such as pains and diarrhœa, or the gums are touched. This is the patient's "full dose," which should be continued by the aid of opiates until the syphilitic symptoms disappear. As soon as this is accomplished, the dose should be cut down one-half, which will act as a tonic, and is called by Dr. K. the "tonic dose." This is to be continued unceasingly, day after day, month after month, waiting for new symptoms. Should they arise, the patient must at once be put upon the "full dose" until they disappear.

Should the syphilitic symptoms be slow to yield to this method, their disappearance may be hastened by a mercurial vapor bath or by mercurial induction.

This is the essence of the general treatment, though each case must of course be considered in its special features. The general treatment should last at least during two years, before which period the case cannot be supposed to be well.

Iodine, in its various preparations, ranks next to mercury. When the lesion is purely gummy, and as a general rule in all visceral syphilis, they must be depended upon. The iodides should invariably be administered immediately after eating and freely diluted with water. The three forms which Dr. K. prefers are the iodide of potassium, the iodide of sodium, and the compound tincture of iodine. The iodide of potassium is the most efficient, but also the most irritating. The compound tincture may be used in starch water (iodide of starch.) It does not disagree with even very sensitive stomachs, which cannot bear iodine in other forms. The dose is ♏ xxx largely diluted.

In combining mercury and iodine the following is a palatable and efficient combination, in which the active ingredients may be varied to suit the case:

981. ℞. Hydrargyri biniodidi, gr. ss.
Potassii iodidi, ʒ ij.
Syrupi aurantii corticis, f. ʒ j.
Tincturæ aurantii corticis, f. ʒ j.
Aquam, ad f. ʒ vj. M.
Teaspoonful in water after eating.

When it is desired to give one of the iodides at a fixed dose, it is well to administer it in solution with some bitter tonic, as the compound tincture of cinchona.

The *iodism* which supervenes on the use of the iodine preparations may be largely kept at bay by frequent warm baths and by causing the kidneys to eliminate freely. With these precautions, an occasional anodyne and the use of large quantities of diluents, the drug being taken just after a meal, large quantities may be tolerated. Dr. K. has given an ounce a day with advantage. In ordinary, gr. iij–v is enough to begin on.

PROF. EDMUND LANGLEBERT, PARIS.

For *soft chancres* (chancroids) it is often needless to employ cauterants. It is sufficient to dress them several times daily with one of the following

ASTRINGENT LOTIONS.

982. ℞. Aluminis, ℈ ij–iv.
Aquæ rosæ, f. ʒ iij. M.

983. ℞. Vini opii, ♏xv-xxx.
Vini aromatici, f.℥ iij. M.
(For formula for vinum aromaticum, see F. 1016.)

984. ℞. Extracti opii, gr. xv-xxx.
Decocti cinchonæ, f.℥ iij. M.

985. ℞. Acidi tannici, gr. xv-xxx.
Aquæ rosæ, f.℥ iij. M.

986. ℞. Argenti nitratis, gr. xv-xlv.
Aquæ destillatæ, f.℥ iij. M.

987. ℞. Tincturæ iodinii, f.℥ iss-ijss.
Aquæ destillatæ, f.℥ iij. M.

988. ℞. Ferri et potassæ tartratis, ℈iv-℥ v.
Aquæ destillatæ, f.℥ iij. M.

989. ℞. Zinci chloridi, gr. iss-iij.
Aquæ destillatæ, f.℥ iij. M.

The lotions of potassio-tartrate of iron and of the chloride of zinc are particularly indicated in order to combat *phagedena*. For the same purpose the following may also be prescribed:

990. ℞. Pulveris carbonis ligni,
Pulveris cinchonæ, āā ℥ ijss. M.

991. ℞. Creosoti, gtt. xv-xlv.
Aquæ destillatæ, f.℥ x. M.

992. ℞. Potassii iodidi, gr. xv.
Tincturæ iodinii, f.℥ iss-v.
Aquæ destillatæ, f.℥ iij. M.

The last recipe is the one which has given the best results in the hands of our author.

DR. J. L. MILTON, EDINBURGH.

This writer (Edinburgh *Medical Journal*, March, 1875,) states that he has found "Zittmann's decoction" a very important aid in secondary syphilis. This is the *decoctum sarsaparillæ compositum* of the *German Pharmacopœia*, and contains small portions of senna and of the mild chloride of mercury and red sulphide of mercury. A formula for it is given in the *United States Dispensatory* (thirteenth edition.)

Mr. MILTON says that chance led him to try the Zittmann decoc-

tion, and with such surprisingly good results that he now uses it in every case and form of syphilis. He first administers a course of iodide of potassium and bichloride of mercury. He strongly advises that, at the outset, the dose should be very small, not more than two or three grains of the potassium, and from the thirtieth up to the twentieth of a grain of the perchloride. Nothing can militate more effectually against the success of the treatment than to risk setting up irritation by giving the remedies too freely at first, or even by raising the strength of them too rapidly at any time. The object in view is effectually defeated so soon as ever symptoms of iodic poisoning begin. There is no choice but to entirely abandon the medicine for some days, perhaps weeks, but certainly until the symptoms have quite abated.

But all precautions for the purpose of enabling the stomach to bear the potassium and mercury fail more or less frequently unless aperients are combined with them, and the patient is restricted to a proper diet. As to the aperient, it is essential that it should consist of two chief ingredients—a pill to be taken over night, and a draft for morning use. He has repeatedly tried both separately, and has failed quite often enough with both to deter him from any repetition of the experiment. The pill may consist of colocynth, blue pill and hyoscyamus, or a mixture of rhubarb, soap and jalap. A sedative or aromatic sufficiently potent to obviate griping is an essential feature in its composition. For the purgative draught, nothing equals a freshly-prepared salts-and-senna mixture. There may be at the outset some depression after a brisk aperient, but the re-action which follows is generally attended by a feeling of relief, of greater fitness for work, mental or bodily, and better spirits—signs not at all likely to attend a prejudicial action of the medicine.

So soon as ever these symptoms are observed, the dose of the iodide and perchloride may be raised at the discretion of the practitioner. He seldom, in his own practice, goes beyond five grains of the former and an eighth of a grain of the latter, two or three times a day, and always stops short of setting up much irritation. The combined treatment is continued for four or five weeks prior to the beginning with a mercurial bath, and, if possible, during the whole time it is employed.

Directly the dose of the iodide is increased, the patient may begin to take a simple vapor-bath once or twice a week, and under any circumstances a course of these should precede the use of the medicated bath. After a few weeks of simple vapor-bath, a mercurial vapor-

bath may be taken twice or three times a week. After a few weeks of this, he places the patient on the Zittmann decoction for eight days. He modifies the decoction, however, quite materially. He omits the sarsaparilla, the antimony and perhaps the mercury, so that the mixture becomes, in reality, a decoction of senna highly diluted by licorice and aromatics. In other words, Mr. MILTON'S treatment is one in which the system is brought *very gradually* under the influence of mercury and iodide of potash, and is from time to time *very thoroughly* purged. If the purging leads to loss of appetite and debility, he administers dilute nitric or muriatic or phosphoric acid to restore its tone.

DR. ALEXANDER M'BRIDE, OF CINCINNATI.

This practitioner (*Lancet and Observer*, December, 1872,) is one of several who, in the last few years, have urged the restoration of *guaiacum* to its old place as a very valuable remedy in syphilis. He has employed it for ten years with excellent results. He gives the drug in pill form, but it must be made in a particular manner, or it will be nauseous, and the patient will tire of it. Alcohol, and nothing else, is the only proper excipient. The way to make the pill is as follows: Pulverize the guaiac and sift out ligneous and cortical impurities; then let the operator be in a warm room, have the mortar warm and the pill machine warm; put the powdered gum into the mortar, add very sparingly of alcohol, beat thoroughly and add more if necessary, but be careful and not get in too much. The object aimed at is to form a mass as stiff as can be worked by means of warmth and a very little alcohol. When the mass is formed, work it rapidly into pills, and roll them into a cold tin pan in a cool room. If one makes these pills any other way, they will prove more or less a failure.

Use no pulverized licorice or other powder. If one uses ever so little too much alcohol, the pill will be soft and never harden.

Of these pills the patient can take from nine to eighteen per day, usually twelve, and will declare he feels better all the time—so much so that if he runs out of pills he will soon call for more. This treatment applies to secondary and tertiary, is excellently adapted to external or cutaneous manifestations, and may be carried on without other medicines.

ABORTIVE TREATMENT OF CHANCRE.

SILAS DURKEE, M. D., ETC., BOSTON.

If, as the result of contagion, or of a suspicious connection, the virile organ has upon it a papule, pustule, abrasion or sore, which *may* be the forerunner of constitutional syphilis, the best thing a surgeon can do, locally, is to make a caustic application to the spot, if this can be done seasonably, say within ten days from the appearance of the abnormal condition. The design of this operation is two-fold: to destroy morbid structure, and to create a healthy, recuperative action in the part. Our author employs for this purpose *potassa fusa*, the *acid nitrate of mercury*, or *concentrated nitric acid*. He never uses nitrate of silver or Vienna paste.

In cases of abrasion, he generally applies *nitric acid* by means of a small bit of lint secured to a silver probe, or, if the surface be very small, by means of the end of a glass rod. The sore is to be freely covered with the acid, warm water being at hand to wash off any excess immediately. The *acid nitrate of mercury*, when used, is applied in the same manner. The slough will be detached in three or five days, and a healthy granulating surface appear. If a solitary vesicle, pimple or pustule is to be destroyed, he sometimes selects *potassa fusa*, which penetrates deeper than either of the liquids mentioned. The end of the stick is reduced to a point and brought in contact with the apex of the morbid growth, or, what is better, break the dome of the pimple with a probe, and empty it of its contents before applying the potassa. To ascertain precisely the work done by the alkali, remove the *debris* or portion destroyed by means of the point of the probe. As the operation is painless, no haste is required, but caution and exactness are both necessary. It is difficult to preserve the solid stick of potassa in a dry state, therefore it had better be applied by placing it on the end of a pointed glass rod or pen. A drop of vinegar will neutralize any superabundance of caustic. The extent of the surface destroyed by this corrosive substance is about twice as great as it appears to be at the time of its application; the same is also true in regard to the depth to which it penetrates.

As the risk of increasing the inflammatory tendency is small, a moderate degree of inflammation co-existing with the pustule or sore need not prevent cauterization.

Cold-water dressing, or a soft cracker poultice, may follow the use of the caustic for two or three days. The first is to be preferred. The patient should rest and diet. When the eschar has separated, dress with:

993. ℞. Ferri et potassii tartratis, ℈ ij.
Aquæ, f. ℥ viij. M.

To be applied on lint. *Nitric acid* (gtt. ij to aquæ f. ℥ j) makes a clean and suitable dressing also.

If the purulent discharge be abundant, order:

994. ℞. Acidi tannici, gr. xv.
Vini aromatici, f. ℥ iij. M.

(For Vinum Aromaticum, see F. 1016.)

If the sore becomes painful, lay over it a piece of lint soaked in:

995. ℞. Extracti opii, ℈ ij.
Aquæ, f. ℥ iv. M.

In occasional instances, after the application of the caustic and the after-dressing mentioned, the sore assumes a spongy or fungoid aspect. Then apply:

996. ℞. Acidi tannici, ℈ j.
Tincturæ lavandulæ, f. ℥ ss.
Vini rubri, f. ℥ iv. M.

Dr. G. E. WEISFLOG has advocated (*Virchow's Archiv*, Bd. 66,) an abortive treatment of chancre by subcutaneous injections of *nitrate of mercury*.

CONSTITUTIONAL TREATMENT OF CHANCRE.

Our author is partial to the use of corrosive sublimate internally, in the treatment of indurated chancre. He advises its use in pill form:

997. ℞. Hydrargyri chloridi corrosivi,
Ammoniæ muriatis, āā gr. xvj.
Aquæ destillatæ, f. ℥ iss. M.

Make a solution, and make up with bread crumbs into one hundred and twenty-eight pills.

This formula gives one-eighth of a grain of corrosive sublimate to each pill. One to be taken morning and night, immediately after meals. In five or six days one may be taken thrice daily. If pills cannot be taken, order:

998. ℞. Hydrargyri chloridi corrosivi,
Ammoniæ muriatis, āā gr. vj.
Tincturæ cinchonæ compositæ, f.℥ij.
Aquæ, f.℥iv. M.

A teaspoonful morning and evening for one week; afterward thrice daily, directly after eating. When this medicine has been taken for twelve or fifteen days, it is good practice to omit it for four or five days, and then resume it.

PROF. S. D. GROSS, PHILADELPHIA.

999. ℞. Unguenti hydrargyri nitratis, ℥j.
Cerati simplicis, ℥vj-℥j. M.

In the treatment of chancre no remedy is so efficacious as this. The objection made to greasy applications can only be considered as having any force when there is want of cleanliness. The dressings should be changed every five or six hours, and care should be taken that the ointment shall always be fresh. When the parts begin to granulate, apply:

1000. ℞. Cerati zinci carbonatis, ℥j.
Adipis, ℥vj. M.

Or merely a bit of dry lint carefully interposed between the contiguous surfaces often promotes cicatrization with remarkable rapidity.

1001. ℞. Hydrargyri chloridi corrosivi, gr. j.
Potassii iodidi, ℥ij.
Syrupi sarsaparillæ compositi, f.℥iij. M.

Dessertspoonful thrice daily, shortly after meals, in tertiary syphilis.

Professor GROSS almost invariably combines the bichloride of mercury with iodide of potassium in the treatment of tertiary syphilis, particularly when the affection is of long standing. An infirm, broken state of the system is no bar to the use of mercury in this combination; on the contrary, it often affords the medicine an opportunity for its best display. To counteract any disagreeable effects of the above recipe, such as gastric irritation, diarrhœa, etc., (which, however, rarely ensue,) an anodyne, as a small quantity of morphia, or from five to ten drops of the acetated tincture of opium, may be combined with each dose.

In regard to the dose of iodide of potassium in the treatment of tertiary syphilis, Professor GROSS states that long experience has taught him that while less than ten grains thrice daily will rarely do

much good, there are few cases in which more than this quantity is really ever needed.

With reference to the employment of iodide of sodium and iodide of ammonium as substitutes for iodide of potassium, Professor GROSS sometimes recommends their use in five-grain doses. CULLERIER says that the iodide of ammonium gives no better results than the iodide of potassium, and he has abandoned its use. It has been asserted, however, on good authority, that the iodides of sodium and ammonium will sometimes succeed in doses in which the iodide of potassium has failed. (TANNER and others.) They are more nauseous than the iodide of potassium.

Bromide of potassium has been employed in tertiary syphilis recently. CULLERIER says no reliance can be placed on this remedy; BERKELEY HILL asserts that in small doses, in conjunction with the iodide, it increases the energy of the latter very materially. It should be borne in mind, in administering the bromide of potassium, that it is decomposed by a syrup.

To overcome the disagreeable taste of the iodide of potassium, so often complained of by patients, PAGET says that a mixture of whisky and the compound syrup of sarsaparilla makes the best vehicle.

M. LIEGEOIS.

Our author employs the following formula for the hypodermic injection of corrosive sublimate in secondary syphilis:

1002. ℞. Hydrargyri chloridi corrosivi, gr. iij.
Morphiæ muriatis, gr. iss.
Aquæ destillatæ, f.℥ xxiijss. M.

♏xvss (= about gr. $\frac{1}{2}$ of the sublimate.) Ordinarily no inflammation follows this injection.

DR. FRANK F. MAURY, PHILADELPHIA.

This surgeon prefers, as a cauterant to the primary sores, either the fuming nitric acid or the acid nitrate of mercury. His abortive treatment of bubo is to paint it with six coats of tincture of iodine morning and evening, and in the intervals a half-brick, heated as hot as it can be borne, is wrapped in flannel and placed over the swelling. This leads to resolution of the tumor.

For constitutional treatment he has found much advantage from Gibert's syrup, as follows:

1003. ℞. Hydrargyri iodidi rubri, gr. ij.
Potassii iodidi, ʒj–ij.
Aquæ, f.ʒj.
Dissolve, filter and add:
Syrupi simplicis, f.ʒ vij. M.
A tablespoonful three times a day.

DR. H. E. WOODBURY, WASHINGTON.

This writer condemns (*Medical Times*, October, 1875,) the custom of opening buboes by free incisions. It is sufficient to pass a narrow-bladed bistoury through the gland, and then inject a drachm of diluted tincture of iodine (one part to four of water.) In some cases the use of the knife can be altogether avoided by the following treatment:

The patient is confined to his bed; a half-brick covered with flannel —a single thickness—is laid upon the bubo. A lump of ice is kept upon the brick, and as it melts, the flannel is saturated with ice-water. He has seen a large bubo disappear in twenty-four hours under this treatment by cold and pressure; a combination of iodine and iodide of potassium in syrup of sarsaparilla being administered internally. If this course be resorted to at the proper time, the necessity for surgical interference will often be avoided. If the knife be used, the smaller the incision, the better and more rapid the cure.

SURGEON W. S. W. RUSCHENBURGER, U. S. N.

1004. ℞. Hydrargyri iodidi rubri, gr. j.
Iodinii, gr. ij.
Potassii iodidi, ℈j.
Syrupi sarsaparillæ compositi, f.ʒ xv.
Aquæ, f.ʒj. M.
Tablespoonful four times a day.

PROF. J. LEWIS SMITH, M. D., NEW YORK.

In infantile syphilis, the following formulæ may be employed:

1005. ℞. Hydrargyri cum cretâ, gr. iij–vj.
Sacchari albi, ℈j. M.
Divide into twelve powders. One to be taken thrice daily.

1006. ℞. Hydrargyri chloridi corrosivi, gr. j–ij.
Syrupi sarsaparillæ compositi, f.ʒ ij.
Aquæ, f.ʒ viij. M.
A teaspoonful thrice daily.

Mercury, in whatever form employed, should not be discontinued

entirely until several weeks after the syphilitic symptoms in the child have disappeared. It is proper to continue it for a time, in diminished quantity, after the health seems fully restored.

When the mercurial is omitted, tonics are often required. The preparations of cinchona are useful in these cases, as are also those of iron. The liquor ferri iodidi is especially useful in this class of cases.

THOMAS HAWKES TANNER, M. D., F. L. S., ETC., LONDON.

1007. ℞. Hydrargyri chloridi corrosivi, gr. ij.
Pulveris opii, gr. v–viij.
Pulveris guiaci, ʒ ss. M.
Divide into sixteen pills. One twice or thrice a day, where it is desirable to continue the use of the corrosive sublimate over many weeks.

SYPHILITIC LARYNGITIS.

MELCHIOR ROBERT.

1008. ℞. Hydrargyri chloridi corrosivi, gr. ij–iij.
Decocti conii, f. ʒ vj. M.
A useful gargle in syphilitic ulcers of the mouth and throat.

1009. ℞. Potassii iodidi, gr. xv.
Mellis despumati, f. ʒ j.
Decocti hordei, f. ʒ iv. M.
A gargle, to be employed as above.

1010. ℞. Potassii iodidi, gr. ix.
Tincturæ iodinii, f. ʒ ss.
Aquæ destillatæ, f. ʒ v. M.
A gargle, to be employed as above.

1011. ℞. Hydrargyri chloridi corrosivi, gr. iij.
Vini opii, ♏ v.
Mellis rosæ, f. ʒ j.
Aquæ rosæ, f. ʒ vj. M.
A gargle, to be employed as above.

SYPHILITIC SORE THROAT.

DR. BIETT, FRANCE.

1012. ℞. Hydrargyri chloridi corrosivi, gr. ijss.
Ammonii chloridi, ℈ j.
Vini opii, f. ʒ j.
Mucilaginis acaciæ,
Mellis despumati, āā f. ʒ ss.
Aquæ destillatæ, f. ʒ v. M.
A gargle, advised in syphilitic sore throat.

DR. ROSS, FRANCE.

1013. ℞. Tincturæ iodinii,
Tincturæ opii, āā f.℥j.
Aquæ destillatæ, f.℥v. M.
This gargle is useful in syphilitic ulcerations of the throat.

SYPHILIDES.

DR. BOINET, FRANCE.

1014. ℞. Acidi tannici, ℈iv.
Tincturæ iodinii, gr. vij.
Aquæ, ℥j. M.
A tablespoonful, in wine, twice or thrice daily in syphilitic diseases

H. GREEN.

1015. ℞. Hydrargyri chloridi corrosivi, gr. iv.
Tincturæ gentianæ, f.℥iv.
Syrupi aurantii florum, f.℥iss. M.
A teaspoonful thrice daily in secondary syphilis and chronic skin affections.

VINUM AROMATICUM.

The following formula is given by BUMSTEAD, as a substitute for the aromatic wine of the *French Pharmacopœia*, when it cannot be procured:

1016. ℞. Claret wine,
Spiritus lavandulæ compositæ, āā f.℥j℔.
Tincturæ opii, f.℥j.
Acidi tannici, gr. xv–℥ij.
Aquæ, f.℥vij. M.
The dressing should be renewed several times a day.

DR. E. L. KEYES, OF NEW YORK.

In treating the cutaneous lesions, the general rule is that the more chronic the lesions the more stimulating must be the local application—so long as the skin remains unbroken. With ulcers, the strength of the ointment must be modified according to the sensations of the patient. The following ointments are most useful in erythematous lesions and the papular syphilide:

1017. ℞. Hydrargyri oleatis, 5 per cent.

Or:

1018. ℞. Hydrargyri ammoniati, ℥j–ij.
Cosmolinæ, ℥j. M.

On scaly and tuberculated patches, the following are efficient:

1019. ℞. Hydrargyri oxidi rubri, ℥ss–ij.
Cosmolinæ, ℥j. M.

Or:

1020. ℞. Hydrargyri oxidi nitratis, q. s.
To be used pure or diluted one-half.

When these do not seem to act promptly, the following will be found of service:

1021. ℞. Hydrargyri iodidi, ℈j–ij.
Cosmolinæ, ℥j. M.

For ulcerated surfaces and patches of rupia deprived of their scabs, these ointments may also be used, reduced to such proportion that their application does not cause pain. An excellent local effect upon ulcers may be often produced by sprinkling them with iodoform or black oxide of mercury, or calomel, alone or combined with oxide of zinc, or with the addition of a little camphor.

When an ulcer is peculiarly indolent, indurated and chronic, new activity may be excited in it by packing it full of crystals of *acetate of soda*. The application produces considerable pain, lasting often several hours, but it has an excellent effect in freshening up a sluggish surface. Solution of *chloral*, gr. v to aquæ f. ℥j, may also be used with advantage. Lint, soaked in this solution, is packed into the ulcer. For mucous and scaly patches of the mouth, the patient should be instructed to cease using tobacco and to touch the spots once or wice a day with a smooth lump of sulphate of copper.

The Italian physicians have made strong recommendations of *tayuya* in syphilis; but it has disappointed expectations.

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SPECIMEN PAGE

OF THE

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552. ℞. Acidi nitro-muriatici, f.℥ iss.
Tincturæ opii, ♏xl.
Syrupi, f.℥ ss.
Aquæ, ad f.℥ iv. M.

A tablespoonful in water, four times a day.

DRS. BURKART AND RICKER, STUTTGART, GERMANY.

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553. ℞. Cotoïnæ, gr. j.
Aquæ destillatæ, f.℥ iv.
Alcoholis, gtt. x.
Syrupi, f.℥ j. M.

A tablespoonful every hour.

Some of the cases were of long standing, some were severe attacks of cholera morbus, and others had been but little benefited by tannin, opium, or lead acetate. The above mixture produced speedy improvement—generally in a few hours—and complete recovery in from twelve hours to six days.

DR. EDWARD R. SQUIBB, BROOKLYN.

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554. ℞. Tincturæ opii,
Tincturæ camphoræ,
Tincturæ capsici, āā f.℥ j.
Chloroformi purificati, f.℥ iij.
Alcoholis, ad f.℥ v. M.

A teaspoonful as required.

RÉSUMÉ OF REMEDIES.

ACUTE DIARRHŒA.

THE PRINCIPLES AND METHODS OF THERAPEUTICS.

BY ADOLPHE GUBLER, M.D.,

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On the opposite page we give a "specimen page" of *Gubler's Therapeutics*, showing the size and type.

11

SPECIMEN PAGE
OF
GUBLER'S THERAPEUTICS.

is, that it cannot fail to be of benefit to those suffering from tubercles to breathe the air on high table-lands.

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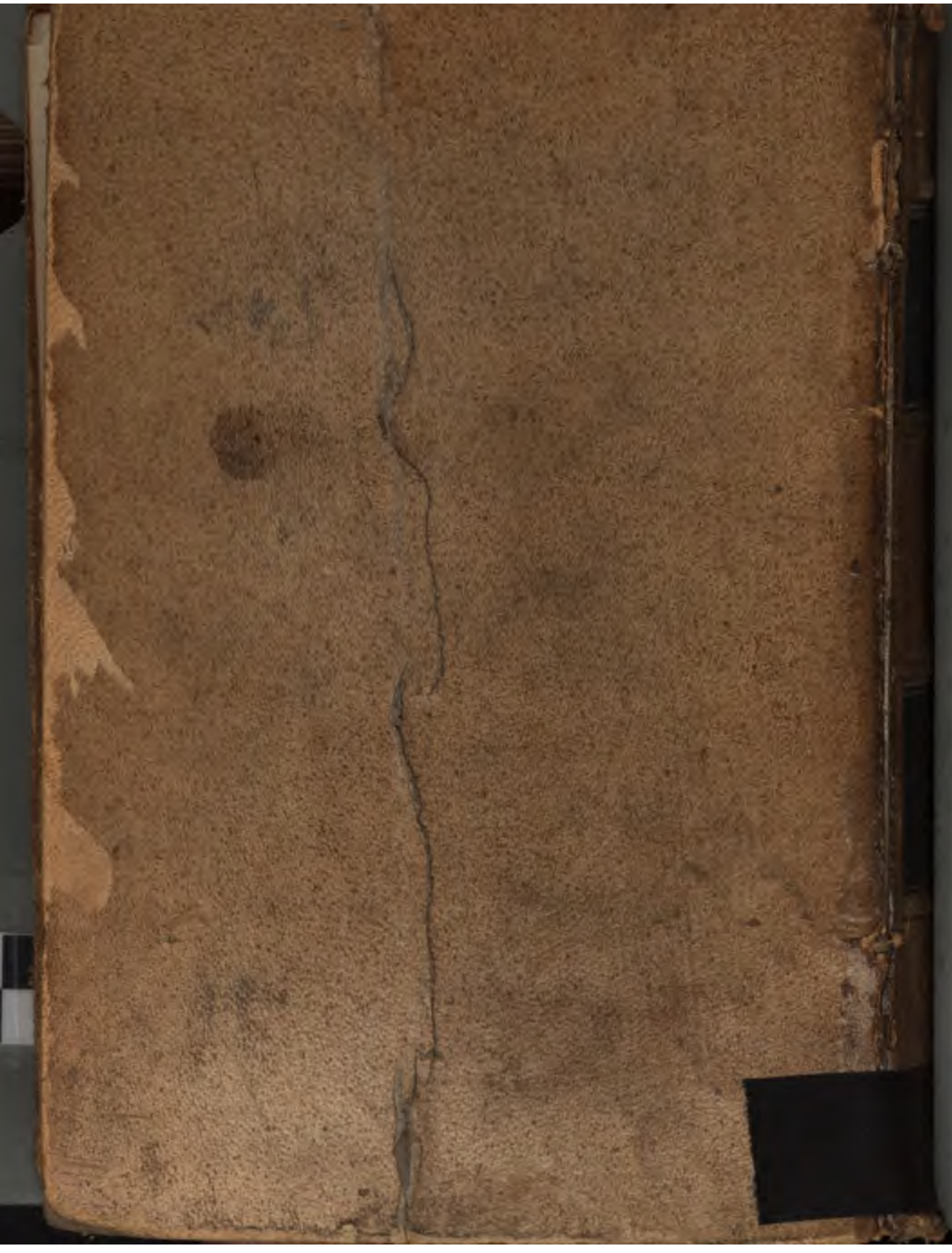
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